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ROYAL COMMISSION OF INQUIRY INTO CERTAIN
DEATHS AT THE HOSPITAL FOR SICK CHILDREN AND
RELATED MATTERS.

X Roland

Stathy

Symes

Kearns

Blah

Shanderson

Tobias.

Hearing held
8th floor
180 Dundas Street West
Toronto, Ontario

The Honourable Mr. Justice S.G.M. Grange

P.S.A. Lamek, Q.C.

E.A. Cronk

Thomas Millar

Commissioner

Counsel

Associate Counsel

Administrator

Transcript of evidence
for

November 3, 1983

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ROYAL COMMISSION OF INQUIRY INTO CERTAIN
DEATHS AT THE HOSPITAL FOR SICK CHILDREN
AND RELATED MATTERS.

Hearing held on the 8th Floor,
180 Dundas Street West, Toronto,
Ontario, on Thursday, the 3rd
day of November, 1983.

- - - - -

THE HONOURABLE MR. JUSTICE S.G.M. GRANGE - Commissioner
THOMAS MILLAR - Administrator
MURRAY R. ELLIOT - Registrar

- - - - -

APPEARANCES:


P.S.A. LAMEK, Q.C.)	Commission Counsel
E. CRONK)	
D. HUNT)	Counsel for the Attorney
L. CECCHETTO)	General and Solicitor General
	of Ontario (Crown Attorneys
	and Coroner's Office)
I.J. ROLAND)	Counsel for The Hospital for
M. THOMSON)	Children
R. BATTY)	
D. YOUNG	Counsel for The Metropolitan
	Toronto Police
K. CHOWN	Counsel for numerous Doctors
	at The Hospital for Sick
	Children
B. SYMES	Counsel for the Registered
	Nurses' Association of Ontario
	and 35 Registered Nurses at
	The Hospital for Sick Children

(Cont'd)



APPEARANCES: (Continued)

D. BROWN	Counsel for Susan Nelles - Nurse
G.R. STRATHY) E. FORSTER)	Counsel for Phyllis Trayner - Nurse
J.A. OLAH	Counsel for Janet Brownless - R.N.A.
B. KNAZAN	Counsel for Mrs. M. Christie - R.N.A.
S. LABOW	Counsel for Mr. & Mrs. Gosselin, Mr. & Mrs. Gionas, Mr. & Mrs. Inwood, Mr. & Mrs. Turner, and Mr. & Mrs. Lutes (parents of deceased children)
F.J. SHANAHAN	Counsel for Mr. & Mrs. Dominic Lombardo (parents of deceased child Stephanie Lombardo); and Heather Dawson (mother of deceased child Amber Dawson)
W.W. TOBIAS	Counsel for Mr. & Mrs. Hines (parents of deceased child Jordan Hines)
J. SHINEHOFT	Counsel for Lorie Pacsai and Kevin Garnet (parents of deceased child Kevin Pacsai)



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A/DM/ak

1
2 ---Upon commencing at 10:00 a.m.

3 DR. HARRY WILLIAM BAIN, Resumed

4 THE COMMISSIONER: Yes, Mr. Labow.

5 MR. LABOW: Good morning,

6 Mr. Commissioner. Mr. Commissioner, I am going to
7 ask you to order the Doctor to produce certain
8 material for me. He has referred in his report to
9 all the children that we represent and he has only
10 dealt with them in some kind of detail in very few
11 of the instances.

12 Now, he has already referred to the
13 fact that he does have notes and details on every one
14 of the children that he looked at. I have asked the
15 Counsel for the Hospital if they would allow me to
16 see the Doctor's notes regarding the six children
17 that we represent. They have said they don't think
18 they should be made available to us. Commission
19 Counsel has told me that he does not have a copy of
20 those notes. Rather than painstakingly going through
21 the charts I thought it would be in everyone's
22 interests if I could review his notes on these six
23 children in order to focus my questioning on any of
24 his conclusions that I don't agree with.

25 THE COMMISSIONER: I think there
is, is there not, did you not deal with the Inwood



1
2 child?

3 MR. LABOW: He deals with all six
4 children, Mr. Commissioner, and he puts a number of
5 them into Group 1A. On page 3 of his report he says:

6 "I shall not go into detail with any
7 of these, although as mentioned
8 complete details and reasons for
9 excluding them are available."

10 THE COMMISSIOER: Oh, I see, I had better get out the
11 exhibit. All I was saying, is Inwood not in 1B?

12 MR. LABOW: The Inwood child is
13 in Group 2.

14 THE COMMISSIONER: Group 2, yes.

15 MR. LABOW: And the Inwood child
16 he does go into it in some detail, and he has also
17 been questioned by Mr. Lamek, and that is not the
18 child I am most concerned about in this respect,
19 because I know what questions I want to ask about
20 his evaluation of the Inwood child. I do not know
21 what his views are on the Gionas and Murphy children,
22 except for his final conclusions.

23 I also have very little information
24 on the Lutes, Gosselin and Turner children, because
25 they are in Group 1B and there are just very short
conclusions.



1
2 What I would like is some time before
3 I cross-examine the Doctor, is to go through his
4 notes on each of those children to see if there is
5 anything that I disagree with in his notes, rather
6 than going through the chart and asking him questions
7 based upon the chart where that might not be necessary.

8 THE COMMISSIONER: All right. I
9 had better find out what the state of the notes are.
10 Can you tell me something about that. First of all,
11 are there notes?

12 MR. ROLAND: There are, the Doctor
13 prepared summaries of each of the children and as he
14 indicates in his report with respect to the first
15 group he hasn't provided any report, the summaries
16 of those, he didn't think it was necessary for his
17 report. The summaries that are in the other groups
18 that are in more detail are virtually the same as his
19 notes, are largely the same, they are slightly edited
20 I think but very marginally.

21 I am not troubled, I didn't know
22 quite what my friend was asking originally. I didn't
23 realize he wanted babies who were not covered in
24 detail in the report, and I am prepared to provide
25 him with the notes, the summaries of his chart
review of those babies. I don't think there is any



1
2 purpose in providing him with anything else, and
3 particularly not with respect to the Inwood child
4 because he deals with it in detail in his report.

5 THE COMMISSIONER: Before we get
6 too excited about it does that solve your problem,
7 Mr. Labow?

8 MR. LABOW: That solves my problem,
9 the Inwood child is not the concern, it is the other
10 five children that I am most concerned with,
11 especially the first two.

12 THE COMMISSIONER: Yes, all right.
13 Then I think the problem is solved, if it could be
14 done - I don't know what time we are going to reach
15 you but it may well be today.

16 MR. LABOW: I would expect it
17 would be today.

18 THE COMMISSIONER: Yes.

19 MR. LABOW: So the sooner I can
20 look at them the better.

21 THE COMMISSIONER: What do you
22 have to say, Mr. Roland?

23 MR. ROLAND: I am going through
24 them right now.

25 MR. LABOW: Thank you very much.

THE COMMISSIONER: It couldn't be



1
2 better. Yes, Mr. Shinehoft.

3 MR. SHINEHOFT: I as well have a
4 concern, Mr. Commissioner, and that is because of
5 my problem of logistics I was unable to obtain a
6 copy of yesterday's proceedings until this morning.

7 My concern is this, Mr. Commissioner.
8 I would like the opportunity to review the evidence
9 as it pertains to the person whom I represent, and
10 I do not feel that I can adequately do this today.

11 My request is that the cross-examination
12 of Dr. Bain should continue for the day and that I
13 intend to confine my examination of Dr. Bain strictly
14 to Baby Kevin Pacsai. Perhaps with the indulgence
15 of the Commission, that everything could be completed
16 including perhaps Mr. Lamek's re-examination, save
17 and except on Kevin Pacsai, if it materializes to
18 that, and that I be given the opportunity of examining
19 this transcript and cross-examining on ---

20 THE COMMISSIONER: This may be
21 academic because you are last on the list and we may
22 not reach you.

23 MR. SHINEHOFT: That is right.

24 THE COMMISSIONER: If we do I would
25 hesitate very much to ask Dr. Bain to come back,
merely because you now - we are faced with this sort



1
2 of thing ordinarily we don't have, at most trials
3 we don't have a transcript so that is a luxury that
4 is available to you.

5 MR. SHINEHOFT: Yes, I understand
6 that.

7 THE COMMISSIONER: If you are
8 concerned mainly about, only about your child, I
9 don't know why you can't get that pointed out to you
10 and read it up at noon, because certainly you won't
11 come on before noon.

12 MR. SHINEHOFT: There is that
13 aspect and there is one other aspect that I would
14 have said that leads me to making this request, and
15 that is I would like perhaps some input from other
16 sources as to commentary on the ---

17 THE COMMISSIONER: You see really,
18 Dr. Bain's report has been available to us all for -
19 I don't know how many months, it has been available,
20 and I really have not noticed that much difference
21 from what is in the report to what he is saying.

22 MR. SHINEHOFT: Well, there is,
23 and I will give you, in my respectful submission,
24 Mr. Commissioner, I will give you one example of
25 where I feel the evidence has materially changed
from when I first read the report. That is in regard



1
2 to the Baby Pacsai. Dr. Bain indicated, at least
3 my interpretation of the evidence yesterday, that
4 this baby may have had this condition of transient
5 adrenal insufficiency while he was in Hamilton.
6 Now, this is the first suggestion by any doctor that
7 this condition may have happened in Hamilton. Again
8 I would like the opportunity to review and canvass
9 that suggestion, with perhaps the people that did
10 examine this baby in Hamilton.

11 THE COMMISSIONER: Nothing stops
12 you from doing that and if necessary calling evidence
13 with respect to it.

14 MR. SHINEHOFT: Yes.

15 THE COMMISSIONER: There is
16 nothing to prevent you from doing that.

17 MR. SHINEHOFT: No, I appreciate
18 that, Mr. Commissioner. This may be an exercise in
19 futility, and I recognize that. I thought at the
20 beginning of the morning I would put forth my
21 request to have the opportunity to firstly review
22 the evidence as it was unveiled yesterday, and I
23 agree, Mr. Commissioner, that a lot of the evidence
24 was in accordance with the report that Dr. Bain has
25 prepared and has been available for some length of
time.



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2
3 THE COMMISSIONER: The only thing
4 I think with perhaps respect to your client's child
5 is that perhaps he went into it a bit more fully
6 and explained why he reached the conclusion and the
7 extent, at least how firm his conviction was and
8 perhaps a little bit more fully than he had in the
9 report.

10 MR. SHINEHOFT: He also went into
11 the question of the blood gases situation in
12 considerably more detail.

13 THE COMMISSIONER: Can I just
14 put this to you? The time may solve your problem.

15 MR. SHINEHOFT: Yes.

16 THE COMMISSIONER: The longer we
17 argue about it the more chance you have.

18 MR. SHINEHOFT: Yes, I can stay
19 here for all day, Mr. Commissioner.

20 THE COMMISSIONER: But if it
21 doesn't solve your problem I am going to call on you
22 to cross-examine and do the best you can on the
23 matter and if that is not adequate and you find at
24 some point you want something more you can always
25 ask for it.

I am going to call on you and I
am not going to promise Dr. Bain will be available



1
2
3 next week to continue.

4 MR. SHINEHOFT: Well, I just put
5 forth my request and I thank you.

6 THE COMMISSIONER: Yes, okay.
7 Now, anything else?

8 MR. LAMEK: May I say something,
9 Mr. Commissioner?

10 THE COMMISSIONER: Yes.

11 MR. LAMEK: On a rather different
12 matter. There is obviously a degree of understandable
13 interest in what went on at the conference at the
14 Hospital for Sick Children on Monday and Tuesday of
15 this week.

16 I undertook yesterday to try to
17 find out what strict^{were}~~ness~~ the Hospital might place
18 upon my reporting and they very wisely said thou
19 shalt not report at all because they don't trust my
20 screening and they are very wise not to. They
21 would much prefer that the report come from a
22 medical person. Dr. Bain is here, he was at the
23 conference and I have asked him if he could summarize
24 the proceedings so that everybody may have information
25 and he has agreed to that and that is acceptable to
Mr. Roland. So perhaps I can ask Dr. Bain to do
that at the outset.



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THE COMMISSIONER: Yes.

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MR. ROLAND: Just to make the

Hospital's position clear. The Hospital has no

doubt of Mr. Lamek's capacity as a lawyer and his

integrity, but until he produces a medical certificate

indicating that he is a doctor we think it better

that any review of the proceedings be put in evidence

through a doctor.

THE COMMISSIONER: Yes, all right.

MR. LAMEK: I couldn't agree more

with that.



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THE COMMISSIONER: And also I

think Dr. Kauffman was at the conference. He will
also be available?

MR. LAMEK: Yes, he was, and
Dr. Hastreiter was there, too, and he will be called
as a witness later as well.

THE COMMISSIONER: I think, then,
I am going to join in the abuse of Mr. Lamek. I
agree it would be better from a doctor, and there are
three doctors available, I take it.

Is Dr. Bain going to tell us some-
thing about it now?

MR. LAMEK: Yes, he is, and indeed
there will be an additional doctor available who was
there, ~~and~~ Dr. Smith, who was one of the authors of
the Atlanta Report, will eventually be here as well,
and she was at the conference, too.

THE COMMISSIONER: Yes. All right.
There we are, ladies and gentlemen. I hope nobody
feels cheated by not having the opportunity to
cross-examine Mr. Lamek but more competent people will
be available to you all, starting with poor Dr. Bain
first.

Are you prepared to make a state-
ment on that?



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THE WITNESS: Half prepared, Mr. Commissioner. I think it is very unfair because there is a real tendency, when they turn out the lights in the conference, that I fall asleep and, now, I am going to be found out.

Secondly, Mr. Lamek has been doing a lot of reading on this and he may find flaws in my reasoning. So, if you wish to keep me honest, that is fine.

There is not that much to say, Mr. Commissioner. I did take notes in order to try to keep awake at the conference.

The first day was probably the best day because it gave a state of the art. First was a historic overview by Dr. Burchell, who I found out -- the most important thing I found out, he was a University of Toronto graduate, even though he is at the Mayo Clinic at the present time. He went back to the fact that -- back to about 1592 and all of the important things from Withering in 1785, and I am not going to go into much of that at all. He looked at, for those who read 'whodunnits', I think Agatha Christie has used the scenaria in about, was it five or three of her whodunnits were digitalis poisonings? He went into, too, the fact that there



1
2 had been errors by pharmaceutical companies in putting
3 out, and there was a great epidemic in Belgium at
4 one time from this, that the wrong material was put
5 in by a very reliable pharmaceutical firm. He felt
6 that that was not likely to happen on this side of
7 the ocean.

8 One of the biggest things involved
9 the legal profession and, therefore, I suppose I should
10 bring it up. There was a great scandal, which I think
11 resulted in either a doctor or a lawyer or both
12 committing suicide, but this was getting people
13 excused from army duty in the United States by giving
14 them dig. and producing electrocardiographic abnormali-
15 ties which were then read by another doctor who
16 excused them.

17 He went into the problem of
18 accidental poisoning and of suicide and, as I mentioned
19 before, of homicide. He talked of electrocardiographs
20 and he seemed to feel that he might, in about one
21 certain instance, be able to suggest that it was more
22 likely digoxin than anything else. I am not sure that
23 the other cardiologists in the audience had an
24 opportunity to sort that out with him. They certainly
25 did not appear to agree, at least the ones I spoke to.

If anyone is interested in that,



1
2 Dr. Burchell did write this up, and that is another
3 reprint that I promise you because it is a most
4 fascinating article that he wrote and covers just
5 about everything he said the other day and it appeared
6 in a medical journal, I think, within the past year.
7 I would be glad to provide that. There is one key
8 page that is a little blurred and I will try to get
9 my secretary to go over it again and see, because it
10 is one of the interesting ones, probably something
11 to do with the whodunnits.

12 Then Dr. Spielberg spoke and he
13 probably said most of the things that he said here
14 the other day, although I was not here and I cannot
15 comment on that. He talked about the various
16 relationships of serum and tissue. He talked about
17 the age dependency, the saturation of binding sites,
18 the myocardium versus serum.

19 I should perhaps ask, Mr. Lamek, did
20 he cover all of this in court?

21 MR. LAMEK: He referred to all of
22 this, yes.

23 THE WITNESS: All of this, so there
24 is no point in my wasting your time on these things.

25 As I say, his was considered to be
one of the better presentations because it did cover



1
2 the state of the art and set groundwork for other
3 people to build research plans, which was really the
4 function of the conference.

5 Next was Dr. Butler, who spoke on
6 problems in analysis of serum versus tissue. Every-
7 thing focused on that receptor site that I am sure you
8 have heard so much about. He also talked about
9 endogenous digoxin or digitalis and the only sort of
10 little pearl he threw out was that endogenous dig.
11 may be manufactured in the liver. So, he threw out
12 that perhaps liver disease in any patient may have
13 some bearing on both ordinary digoxin metabolism but
14 also on the question of this endogenous substance.
15 He did not say whether the sick liver was more apt
16 to manufacture it or the well liver - at least I did
17 not glean that. He referred to the business of
18 antibiotics administered to people on digoxin and
19 what that did in changing active digoxin to digoxin
20 metabolites or vice versa.

21 They spoke of the various affinity
22 methods that they might put in, and I am not going to
23 get into that because I don't know anything -- I
24 suspect Mr. Lamek knows that and he will speak on the
25 scientific side. I will stick to the pure clinical
side here.



1
2 He went on to say that dig. toxicity
3 is a clinical diagnosis and cannot be made from serum
4 levels. He talked about individual differences in
5 tissue uptakes of individuals, and someone else spoke
6 on those differences sometimes appearing in the same
7 person at different times; so, it further compounded
8 the problems.

9 Tissue levels, I have made a little
10 hen track here, just much more difficult and the
11 effects of formalin fixation were unknown. They
12 talked about skeletal muscle and the fact that most
13 digoxin is stored there and is relatively stable after
14 death and perhaps it would be a useful site to dis-
15 cover it.

16 The last line I have written is
17 "more work needed". I think that sums up just about
18 what everybody said.

19 Dr. Schwartz then, from Cincinnati,
20 spoke on the mechanism of the action of digoxin and
21 he was probably the most provocative of the people
22 there. I did not sit in his small session in which
23 he performed, but at the other -- and one of the points
24 he made was one I referred to yesterday; the question
25 that a high digoxin level, as we have known before,
could cause an increase in potassium, and he brought



1
2 up the other point that high potassium level, on the
3 other hand, could interfere with whether it is the ATP-
4 ase pump - that was the catchword the other day - or
5 the cell membrane or the receptor sites, and thereby
6 influence serum digoxin levels. That was just a little
7 point that he went over.

8 Then Dr. Allan Mitchell from Boston
9 spoke - I'm coming to the end - on issues for monitoring
10 for adverse events. This is more for the epidemiolo-
11 gists. He just said how difficult things were for
12 epidemiologists, and I got a little dizzy after this.

13 I am just trying to find something
14 here that stuck in my head - and did not stick very
15 well. He was making comments on heparin that was
16 given intravenously and causing the syndrome that I
17 referred to yesterday - not the large amounts but just
18 the amounts to keep things open - and they thought
19 they had something going for them because 330 of the
20 patients had bleeds. Then he related what they have
21 to be faced with is a person who drinks and has lung
22 cancer and is there any relationship between alcohol
23 and lung cancer, and he comes down to that the real
24 fact is that people who drink usually smoke and,
25 therefore, it is the cigarettes. So, he talked for
maybe fifteen or twenty minutes on confounding factors.



1 At the end of that I felt that I did not know how they
2 were ever going to rule out all their confounded
3 confounding factors.

4 What happened then was, I believe -
5 I did not bring the program with me but, after that,
6 they broke into five groups looking at those various
7 headings: pharmacokinetics, tissue analysis,
8 epidemiology and, whatever they are. I can get you
9 a program, but do you recall what those --
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Do you recall what those were?

MR. LAMEK: Yes, it was one of the
detection techniques.

THE WITNESS: Detection techniques.
That was where the real egg heads got together and
laid it on the line as to what they knew and what
they didn't know and I would think that the second
led the parade, that there was more they didn't know
than knew and then they carried - that was all
afternoon.

Both Mr. Lamek and I sat in the
pharmacokinetic's section in the afternoon and in
the morning - I didn't stay all afternoon and in the
morning they continued and he was very brave and
went to the session on tissue analysis, and he may
wish to talk about that because that was certainly
over my head and I didn't think I would go to it.

Then, after those sessions each group
got together to draw up a list of what research they
felt needed to be done and then they came back to the
main sessions and discussed that and, to be frank,
I wasn't too impressed with the main sessions. I
think everybody in the follow-up, I think everybody
was awfully tired and several were catching planes;
one, as a matter of fact, stopped almost in mid



1
2 sentence and left to catch a plane.

2
3 There wasn't too much back and forth,
4 it was merely a presentation of where they thought
5 research should take place. They stopped short of
6 finding where they were going to get the money for
7 it. That is probably what the Hospital is most
8 worried about.

9 So, is that a fair summary?

10 MR. LAMEK: Entirely, yes.

11 THE WITNESS: I don't think there
12 is any great secret about anything. I think, sir,
13 that the main reason for the security and all was
14 just that somebody might misinterpret things that
15 were going on. I didn't hear anything in any of the
16 sessions and it was made clear at the very beginning
17 that none of the sessions were to focus in on anything
18 that had anything to do with this Commission by name
19 or by patient, this sort of thing. I think this was
20 the main thing the Hospital was concerned about.

21 MR. ROLAND: Yes, Mr. Commissioner,
22 you will recall that earlier on before this conference
23 was really much underway, in the latter part of its
24 planning stages, there was some criticism, mild though
25 it was, but there seemed to be some criticism that
the Hospital might be perceived as trying to affect



3 1
2 the course of this Inquiry by this conference and it
3 was for this reason the Hospital felt that it was
4 appropriate, in order to make it clear to everybody
5 that that certainly wasn't the intent at all of the
6 Hospital. It was a scientific conference for the
7 purpose of pursuing scientific questions that it was
8 felt important to keep the conference a closed
9 conference to allay any concerns that the Hospital
10 in any way was trying to affect the course of this
11 Inquiry.

11 THE COMMISSIONER: I understood much
12 of it was - was this not one of the recommendations
13 in the Murphy Inquest?

14 MR. ROLAND: It was one of the
15 recommendations in the Murphy Inquest. That was
16 really the impetus for the conference. The conference
17 I think had been in a sort of preliminary planning
18 stage. It had been an idea that had been mooted for
19 some time and people were interested in it and it
20 was really pushed forward in time by the Gary Murphy
21 Inquest and the recommendation that came from that.

21 THE COMMISSIONER: Yes, all right,
22 thank you. Yes, Mr. Olah.

23 MR. OLAH: I only had the opportunity
24 of following this interesting conference through the
25



Bain

1
2 papers and there was a very clear recount of some
3 discussion about RIA readings and concerns about those
4 readings and I was wondering if the good doctor could
5 perhaps tell us about that.

6 THE COMMISSIONER: Yes, all right.
7 You will have an opportunity I know to bring the
8 matter up to him if you want.

9 MR. OLAH: I thought this might be
10 an appropriate time, sir.

11 THE COMMISSIONER: All right. Do
12 you want to do that?

13 THE WITNESS: Well, just remember
14 I am not one of those clinical pharmacologists and
15 as I am under oath I am not supposed to tell anything
16 but the truth.

17 THE COMMISSIONER: Experts are
18 relieved.

19 THE WITNESS: I see, thank you. My
20 recollection about it ---

21 THE COMMISSIONER: They have to give
22 an honest opinion.

23 THE WITNESS: An honest opinion.

24 THE COMMISSIONER: The opinion doesn't
25 have to be certified.

MR. OLAH: It was just that the doctor



1
2 who was Professor Gault or Dr. Gault, I believe he
3 was speaking on this matter of RIA.

4 THE WITNESS: Fortunately I seem to
5 have made a couple of notes here. Analysis and
6 measurement, Dr. Gault. We must improve specificity
7 of the antibody. He said the HPLC and the RIA were
8 the most practical and the most specific at the present
9 time but not satisfactory for forensic work. He
10 commented on the mass spectrometry work that is going
11 on and hoped that that would help. I think the
12 word, what he said early on, which was maybe in the
13 papers was the fact that with the various kits and
14 all that one had to be very careful because in
15 essence there were no two the same, or somebody may
16 have said this a little bit later on, Mr. Lamek can
17 comment on this too, somebody later on had tested a
18 bunch of kits and there was no correlation between
19 them.

20 So, he was just pointing out that
21 what is present on the market at the present time
22 has to be a little suspect. It is probably the best
23 we have but needs to be improved upon. I think that
24 was the sum and substance.

25 MR. LAMEK: I wonder if I might ask
a question of that very topic, Mr. Commissioner.



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3 Dr. Bain is entirely right that
4 Dr. Gault did talk about HPLC and RIA, which is a
5 technique we have heard something about here, and
6 indicated that it was probably the most reliable
7 and specifically practical measuring technique
8 available. But he also said, as I recall it, he
9 regarded it as perfectly satisfactory for clinical
10 use.

11
12 THE WITNESS: That's right, for
13 ordinary use.

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15 MR. LAMEK: But it wasn't in his
16 view for forensic use. I confess I didn't understand
17 that. I wonder ^{what} ~~if it~~ was your understanding of it.

18
19 THE WITNESS: Well, I suppose it
20 shows, maybe we could call the forensic people
21 researchers, maybe they look down their nose a bit on
22 us and they say that that is good enough for you
23 people but for scientific work it is not good enough.
24 No, I am being unkind and unfair. I think what he is
25 saying is that as kind of a marker as an indication
it is fine but I suppose the same would apply if you
are doing research or forensic work to base conclusions
that might result in, well, if there were a death
penalty, things like that, that he wouldn't like it.

I see further that it was Valdes



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2 who did the speaking from the audience, do you
3 remember?

4 MR. LAMEK: Yes.

5 THE WITNESS: He spoke and he said
6 he has trouble with the RIA, he had widely disparaging^(e)
7 results. So, I think it was he, even though Dr.
8 Gault who is from Newfoundland who had opened the
9 question.

10 I think that is all I can say, that
11 they feel that they must improve on it.

12 THE COMMISSIONER: Yes, but the
13 reference to forensic work then would be I suppose
14 something along, having to do with the burden of
15 proof in a criminal case?

16 THE WITNESS: I think that is
17 probably what he was saying. I think Mr. Lamek could
18 comment on that better than I.

19 MR. LAMEK: I didn't really understand
20 the distinction.

21 THE WITNESS: No. I would have
22 thought he might have said or would have better said
23 for research purposes rather than for forensic
24 purposes.

25 THE COMMISSIONER: Yes. Yes, Mr.
Shinehoft.



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MR. SHINEHOFT: I have one question, Mr. Commissioner, and perhaps Mr. Roland might be able to answer this and, that is simply this, does the Hospital intend at some time to publish some kind of a paper outlining what did happen?

THE COMMISSIONER: I can answer that. They said in a letter to me that that is what they were going to do but they didn't guarantee, nor did they make any kind of a suggestion that it would be out before my report. So, there you are. I don't know, have you any further information on it?

MR.ROLAND: I have no further information. I understand that the proceedings were transcribed but it may take some substantial period of time for those transcripts to be completed and I just don't know the time frame on that.

THE COMMISSIONER: I think it is the intention, is it not, to have them edited by the authors.

MR. ROLAND: I think probably, yes.

THE COMMISSIONER: I think that is what normally happens.

MR. ROLAND: I would suspect that that is what normally happens in the normal course. I don't know any more details than that.



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THE COMMISSIONER: No. So, there can't be any promise that we will have it available to assist us.

MR. SHINEHOFT: Perhaps we should have our shorthand reporters.

THE COMMISSIONER: Well, they wouldn't allow it, you see. I think Mr. Lamek was watched very carefully when he was in there.

MR. LAMEK: No question about it.

THE WITNESS: It was just in envy. I might say, Mr. Commissioner, if I may, that I could get an answer to that question for you as to the proposed time that they would have that, if you wish.

THE COMMISSIONER: Well, we can't do any more than ask them and as soon as it is available we would like to have it. There certainly was never any understanding to be any promise and I don't intend to hold up the proceedings for it, particularly, as Dr. Bain has really told us, that there are no solutions to any of our problems offered by them.

All right, now, I think, Mr. Strathy, it has been a long preliminary.

MR. ROLAND: If I can advise once more before Mr. Strathy begins because Dr. Bain referred to some other papers that I think are not in as exhibits



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2 and I perhaps should introduce them now.

3 THE COMMISSIONER: All right.

4 MR. ROLAND: One paper that he has
5 provided to me this morning. It is from Fundamentals
6 of Clinical Cardiology and it is entitled "Sudden
7 Infant Death Syndrome - Crib Death" by Warren G.
8 Guntheroth, G-u-n-t-h-e-r-o-t-h, M.D. and I don't
9 think that is in. So, perhaps I could have that
10 marked as the next exhibit.

11 THE COMMISSIONER: Yes, all right.
12 I take it we had better have that identified.

13 MR. ROLAND: Can you identify that
14 paper.

15 THE WITNESS: Yes.

16 THE COMMISSIONER: Exhibit 246.

17 ---EXHIBIT NO. 246: Document entitled "Sudden Infant
18 Death Syndrome - Crib Death" by
19 Warren G. Guntheroth, M.D.

20 MR. ROLAND: The next paper provided
21 by Dr. Bain I also don't think yet is an exhibit and
22 he referred you to it yesterday. It is published in
23 TIPS, September '82 and entitled "Is There an
24 Endogenous Digitalis" and it is by Frank S. Labella,
25 L-a-b-e-l-l-a. Dr. Bain, did you provide that paper
to me and is that the paper you referred to yesterday?



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THE WITNESS: Yes, it is.

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THE COMMISSIONER: 247.

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MR. STRATHY: I think that is

attached to Exhibit 48.

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THE COMMISSIONER: Well, you know,

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it does sort of show us up.

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MR. STRATHY: It is bound into my copy of Exhibit 48.

THE COMMISSIONER: Well, you should know, Dr. Bain, that is your report.

THE WITNESS: That is it, yes.

THE COMMISSIONER: Yes, quite right, it is there, so let us not have it.

MR. ROLAND: Okay, then we will withdraw that exhibit.

THE COMMISSIONER: Yes.

MR. ROLAND: And then the next exhibit I know is not in and this will be Exhibit 247, and it is a report of "Sampling Error in Plasma Digoxin Estimation" and it is from the Intensive Care Unit of the Hospital and it is authored by Dr. Barker.

THE COMMISSIONER: Is this Sick Children's Hospital?

MR. ROLAND: Yes. It is a report of sampling errors in the ICU from April and May of this year, I'm sorry, in 1982, and Dr. Bain referred to that yesterday.

THE WITNESS: I don't think I referred to it.

THE COMMISSIONER: Anyway he



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provided it to me this morning. Is that the report?

THE WITNESS: That is the report,
yes.

MR. ROLAND: It is dated July 1982
and may we have that as Exhibit 247?

THE COMMISSIONER: The other 247
appears to be attached to 48, so we are not going
to put it in. When you say you didn't refer to it,
what is your view of it, because if you don't
approve of it I don't particularly want it.

MR. ROLAND: Perhaps I should ask
the Doctor a little bit about it.

THE COMMISSIONER: Yes.

EXAMINATION BY MR. ROLAND:

Q. Doctor, can you tell us what
this report deals with as far as sampling errors are
concerned, and your view of the report?

A. I'm not quite prepared for
this, that this was something I was planning to
discuss in this way.

It was just that Dr. Barker last
spring came to me and talked about a couple of
patients and I will paraphrase it but I think the
material is here.

He talked to me about a couple of



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3 patients in the ICU who had been, had a central
4 venous catheter in and who had a digoxin level taken
5 and the level I think in one instance, serum was 30,
6 and in another one was 40, or greater than 40, and
7 the patients I think I had gone up to the ward, I
8 don't know whether both of them had but they both
9 looked perfectly well and they said, gee, something
10 is crazy here.

11 They had a standing rule in the ICU
12 that any specimens taken for digoxin level must be
13 taken fresh from a vein. With this catheter in, and
14 sometimes with difficulty in getting blood from
15 babies, there is a real temptation for whoever is
16 taking the specimen to just pull the blood back out
17 of the catheter that is already there. So he thought
18 perhaps this is what had happened. They got
19 specimens done on the ward immediately and both of
20 them were within the normal range. So he wondered,
21 even though you have an indwelling catheter going
22 into the - one of the big veins, and after they
23 give a medication, regardless of the medication,
24 they leave the line running at a very slow rate,
25 something like 2 to 4 cubic centimetres, or millilitres
per hour, just enough to keep that line open.

They knew from past experience that



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2 sometimes antibiotics will stick to the plastic
3 tube. So to do levels by pulling it back out of
4 the same line would perhaps give false results.

5 So what he did he set up the
6 experimental situation, and I am not sure whether he
7 used humans or dogs, he used somebody, I guess it
8 was children. In any case all he had was the same
9 set-up and took the material back out through that
10 line instead of what we normally tell people to do.
11 Lo and behold he got levels that were greater than -
12 he got some levels that were greater than 100, and
13 one of them was greater than 1680. So it is just
14 substantiated the fact that you must not take a
15 specimen out through any sort of tubing or intravenous
16 or anything else through which any material has been
17 given previously.

18 MR. ROLAND: Thank you, Dr. Bain.

19 ---EXHIBIT NO. 247: "Sampling Errors in Plasma
20 Digoxin Estimation" from
21 the Intensive Care Unit of
22 The Hospital for Sick Children
23 by Dr. Barker.

24 THE COMMISSIONER: All right,
25 Mr. Strathy, if you quickly take the ---

MR. STRATHY: I will try and finish
my cross-examination, I would have been finished by
now.



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MR. TOBIAS: Since I have a credit
in my account, Mr. Strathy, I can lend you some time
at a reasonable rate of interest.

MR. STRATHY: I appreciate that.

CROSS-EXAMINATION BY MR. STRATHY:

Q. Doctor, my name is Strathy
and I represent Nurse Phyllis Trayner.

Doctor, you are going to have to
forgive me if some of questions seem simplistic.
When you were starting out your career as a
Pediatrician I was starting out my career as a child.

A. I don't know whether I like
that comment or not.

Q. That probably goes for a
number of us here with a few notable exceptions.

THE COMMISSIONER: I just wanted to
say I started out my career as a child before the
Doctor did.

THE WITNESS: Thank you.

MR. STRATHY: Q. Doctor, back
in 1948 or 1949 when you started in Pediatrics,
were you using digoxin on children?

A. Oh, yes, I can't answer that
right off, my memory, I should be getting good on
those old things, certainly we were using it on adults.



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2 I would have to say at that particular time most of
3 the patients with congenital heart disease, you know,
4 it was a foregone conclusion that they likely were
5 not going to make it. It was just about the time
6 they were starting surgery and things. Certainly in
7 children who had rheumatic heart disease and all,
8 yes, we did use it, I can remember that quite well.
9 I would have to say, I don't know, my guess would be
10 that, yes, in the older children whether we were in
the infants or not I don't recall.

11 Q. Certainly digoxin with infants
12 came in some time in the late forties, early fifties,
13 would that be reasonable?

14 A. That would be my guess. Don't
15 forget there were other digitalis preparations that
16 go a long way back, and digitalis leaf was a
17 little more difficult to monitor and such things.
18 I would think that anybody who had heart failure
19 that probably somebody had tried digoxin, but
certainly for common usage, you know, you are correct.

20 Q. We have heard evidence,
21 Doctor, that in those days, and in fact into the
22 1970's and in fact at the very present, the best way,
23 or one of the best ways of assessing the degree of -
24 the appropriateness of the digoxin dose is to observe
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2 the clinical condition of the patient; do you agree
3 with that?

4 A. I agree with that. I think
5 that might have even been alluded to in the recent
6 conference.

7 Q. So that even though you have
8 RIA methods for the assay of digoxin coming in in
9 the seventies, Doctors, such as yourself, Pediatric
10 Cardiologists would certainly still consider the
11 clinical condition to be an important factor in
12 treating the patient?

13 A. Well, it has to be. When
14 you stop and realize that most people who are on
15 digoxin are at home, and they may not ever be
16 admitted to a hospital even for the initial standardi-
17 zation, because when you use it in a certain age
18 group and a certain condition for so long you get
19 to use sort of standard doses that you know, are
20 all right. My feeling is, and I haven't checked this
21 out with my internist friends, but I would suspect
22 that very few of them had ongoing, if any, digoxin
23 levels at home.

24 Q. Certainly dealing with the
25 children/infants in the wards at the Hospital for
Sick Children, it would still be most important to



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observe the clinical condition in terms of treating
the child with digoxin?

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A. Or anything, yes.

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Q. I am interested, Doctor, that
you mentioned that in 1948, the late 1940's,
congenital heart disease was in effect untreatable,
is that fair?

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A. Yes, that is about the time,
and again my memory fails me, that was about the time
I came back to the Hospital for Sick Children and
Dr. Mustard who was on staff as an orthopedic surgeon;
and his boss said, you are no longer going to be an
orthopedic surgeon, you are going to be a cardiac
surgeon, you had better go down to the States and
see what Dr. Blalock and Taussig are talking about.
He went down for three months and became a cardiac
surgeon, and he came back and started to operate on
the patients, yes.

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Q. And this is the Blalock-Taussig
shunt we have heard about?

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A. Yes.

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Q. So many of the children we
have looked at in these proceedings, 36 or 40 children,
many of these children 40 years ago would not have
lived, is that fair?



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A. I think that is fair to say. There are notable exceptions in some of them. I even had a relative who did not die until he was 40 or 50 and he was always as black as your boots, and in retrospect he must have been a Tetralogy, I didn't know the word then, but the rule was ---

Q. Certainly the surgical techniques that you developed, the medication that has been developed has certainly enabled ---

A. That changed the whole picture, yes.

Q. So we have children living who would never have survived years ago?

A. A lot of children sort of wouldn't have, my recollection of the numbers who came to hospital even then, that they were few and far between; whether they died in the other communities, or whether they felt really there was nothing they could add because they knew there was nothing we could add, I don't remember the large numbers that we now see.

Q. Obviously, Doctor, the medical knowledge in your particular area has developed tremendously over the past 40 years. I assume from what you have told us, particularly with



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2 reference to this recent conference, that it is still
3 growing rapidly and with important new areas being
4 opened up.

5 A. Well, I think it is safe to
6 say, I suppose we are all intellectual snobs or
7 whatever and we think we know everything about
8 everything. I suppose 40 years from now they will
9 think we were in the dark ages. I was fortunate
10 enough to start training in about 1939 and that is
11 when sulfonamide came on . Before that we had
12 no antibiotics, we just sat and held the pulse and
13 waited for the crisis. So it seems so many tremendous
14 developments all of the antibiotics and all of these
15 things, but there is no reason to think that that
16 is not going to continue, I don't think we have
17 solved everything by a long shot.

18 Q. I was interested at the end
19 of the day yesterday when you were speaking of the
20 conference that you - you were described incidentally
21 in the transcript at page 3546 as the "claimant"
22 instead of the witness, I don't know whether that
23 was left over from the Land Compensation Board.

24 A. I will be glad to.

25 Q. You may well speak to
Mr. Lamek. You mentioned though at the conference



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2 there was a lot admission of ignorance with respect
3 to digoxin. You also said that the feeling was there
4 was a great deal to be learned about digoxin.

5 Would it be fair to say in your view
6 that the learning is really just at a fairly elementary
7 stage at this point?

8 A. I don't know whether you would
9 call it elementary, because, you know, I couldn't
10 understand a lot of words and everything that was
11 said. It is not just elementary, it is just that
12 there comes a point in time when attention is
13 focused on an area and they get on with the job.
14 It is not, you know, you must set priorities, there
15 are a certain number of things that you can do, and
16 possibly all of the problems that the Hospital for
17 Sick Children has had has helped to focus on that,
18 and other centres have then looked at their problems
19 and the amount of dig. toxicity and things they have
20 had, and I guess little pockets of research have
21 started up.

22 I think the conference thing will
23 sort of cause this to gel and go forward; it was
24 not like a Billy Graham thing where people got up
25 and said, you know, I confess, it wasn't quite like
that.



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Q. Would it be more appropriate then to say that the research into digoxin is becoming more sophisticated?

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A. Very much, and it certainly will be. I think it is beginning to become very much more sophisticated. It has just been in the past two or three years that there has been a tremendous number of papers appear.

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Q. Without giving any secrets away, can you identify for us the areas pinpointed by the conference for further research, where further research is necessary? You mentioned some of the things that were discussed. Can you help us as to what was proposed in terms of further research?

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A. I will try and, you know, we conduct this a little differently than you conduct a medical conference, Mr. Commissioner, so when I say something perhaps Mr. Lamak will help me.

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I think, for example, there was a great deal of discussion as to whether the serum level which we were traditionally depending on that something like - since there is a lot of digoxin in red bloods, that perhaps red blood cells or whole blood might be a better way. That was disputed, but that will be taken up.



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3 Other things, I think a great deal
4 of the emphasis was on the question of post mortem
5 blood, even more so on tissue and fresh tissue and
6 fixed tissue, because once you get into fresh tissue
7 then they have to find something that is a little
8 more accessible than the heart, because you can't
9 be taking specimens of heart muscle, but you may be
10 able, if the same situation applies, you may be
11 able to be taking specimens of ordinary muscle, or
12 perhaps skin. So there were these areas.
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I think the one I had already alluded to of the kits and the specificity, I think the most important thing is how does it work and what affects it. For example, what are the effects of cold stress, of hypoxia, acidosis, of other electrolytes; all of these things on the binding of dig.

Another thing that was raised, and has been raised in a lot of journals recently, is what is the effect of the potent diuretics that we administer to just about every patient with heart disease. Some of those cause a loss of potassium and, therefore, through the potassium loss, may be potentiating the dig. without any change in the dig. level whatsoever.

Q. Sorry, potentiating the dig.?

A. Making it stronger, lasting longer.

Q. Increasing blood level?

A. Not necessarily. This is where the research has to focus; how does it bring about this so-called inotropic effect of making the heart contract.

Then, there are other diuretics that do not affect potassium. So, we know from the



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measurement point of view that there are certain, I believe, antibiotics that interfere with the measurement, but nobody has really looked at everything we give to patients when they are sick to see what effect that might have, and this has to be done.

I am probably forgetting some major ones.

Q. Let me just ask you one or two points, and that may point up other areas.

When you refer to the post mortem levels and the question of tissues and blood, are you referring to the question of the significance of post mortem levels and the significance of tissue levels?

A. Yes. They develop numbers but they are not entirely certain, necessarily, what a number means; say, where the specimen came from. They don't know how much of it after death and how soon after death that potassium may leach out of tissue into blood. People know, for example, if you take a specimen from the heart, it is going to be higher than if you take it from a vein out in the periphery. I think Dr. Kauffman spoke before about very high levels from an area in the brain where we would have thought, being away from the heart, would be



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low. So, that sort of thing.

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Q. And, doctor, obviously,

one area that was identified from what you have told us about what took place at the conference was this whole question of an endogenous digoxinlike substance?

A. It was not that much.

There was talk - I was not at any small conference where that was being discussed, but it was alluded to, and the real question there is identifying it. Once identified, then to see whether - and that was the reason I alluded to that paper yesterday - is there an endogenous dig. substance, because you could have something that appears identical that has no effect. I think the next thing is to find out whether the endogenous material does have any effect. If not, it is just a nuisance. If it has an effect like the endorphins, then it is a different thing.

Q. In respect to what Dr.

Butler was saying about this endogenous substance, was it identified as -- maybe it is just a matter of my ignorance of the terminology, but was it identified as endogenous digoxin or an endogenous thing that looks like digoxin?

A. I think most people were referring to dig.-like substance.



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Q. Was there any suggestion that what it was was, in fact, digoxin?

A. Not at that meeting, that I recall, but, you see, all of those things would have been discussed in their small sessions. I was not at such a session nor did I hear that referred to in the summing up.

Q. You also mentioned this question of the fixation of tissues and what it does, and I think you mentioned yesterday this ELI or ELY medium.

A. I don't know what they call it, those virologists - I call it ELY and they call it E-L-Y, because, I guess, each letter means something - it is not a man's name or anything.

Q. Was there any discussion about the difference between fixation in ELY medium and Klotz medium?

A. I don't think anybody has done anything. The point I was trying to make yesterday was that, sometimes, when you get a specimen like that that is almost liquid and you put something in - and I must say that before I checked with the virologists, I thought that they had taken blood and put it into that, because that is normally what we do



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with blood cultures or anything. In trying to grow a virus, or whatever, we take blood and put it in. But, when I checked, I found that in the virus lab, with the ELY medium, they are, in fact, putting tissue in and, therefore, it is a different -- I was interpreting and, even in those notes I told you I carry around in my pocket, I had them up under 'serum'; whereas, they should have been down under 'tissue'.

Q. Was there any discussion of the effect on tissue being immersed in either one of these solutions?

A. No. I don't know that anybody would have thought of it, not in the plenary sessions or in the summing up. There was just one line, I believe, that said, "We don't know", or it even could have been in the pharmacokinetics thing we sat in on; that "We don't know the effect of formalin on tissues".

Q. The last thing at that conference you mentioned was the question of the HPLC and RIA being suitable for clinical work but not necessarily for forensic work.

I would have thought that the difference there is that, in clinical work, presumably where you test on the wards a number of patients on a



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routine basis, you are testing because you expect to see digoxin in their systems; you are measuring, you know they are getting digoxin.

A. It is to help you with the management of the case, yes.

Q. In patients that you know are on it --

A. Yes.

Q. --you certainly expect to see digoxin; whereas, in the forensic setting, presumably you are going in, hopefully, blindfolded, not knowing what you are looking for, and I would have thought, in that context, more refined techniques would be appropriate.

A. I think that is maybe a fair interpretation; I don't know. I think maybe it comes down to when you are doing research, and that is why I would rather have had them use the word 'research' rather than 'forensic', but I suppose they are the same; that, in a research setting, when you are doing those tests, you try to control all the other variables; whereas, in the ward work, there is no way that you can control the variables unless you are doing a research study. I mean by that other, antibiotics, intravenous, relationship to meals;



E7 2 you know, the whole bunch.

3 Q. What I come away with
4 after listening to your evidence, and I think you
5 used the expression yesterday in relation to this
6 whole question of digoxin, that we should not, to use
7 your words, 'shut off our thinking on the subject'.

8 Is that still your feeling after
9 this conference?

10 A. The conference really was
11 not meant to solve problems. It was to state problems,
12 and I think enough problems are stated and, as we have
13 said, we are sort of at the beginning insofar as a
14 great deal of further research into it. That does not
15 mean there is not a fair amount already known. On
16 that, again, I hark back to my conclusions that,
17 until we have the experts that we requested in
18 the study give their testimony, I would like to
19 withhold any statements. I am not in that league.

20 Q. Let me take you to your
21 report, Dr. Bain, Exhibit 48.

22 First of all, just dealing with the
23 data that you had before you in preparing your report,
24 as I understand it, it was limited to the charts of
25 the individual patients and the evidence that took
place at the preliminary hearing.



E8

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A. That is correct.

3

Q. And I think you have

4

confessed that, really, from your point of view as

5

a doctor, that is a second-best sort of way to

6

approach a clinical opinion on a particular patient.

7

Looking at the chart is really a second-best method.

8

A. I think so, and I think

9

I added that I would never have made any money either
because they would have just sent me the reviews, and

10

I never would have seen the patient. But that is

11

correct. If somebody wants another opinion, they are

12

not going to get it likely from you looking at the

13

same thing they have looked at.

14

Q. Would that not be the

15

first thing you would do when you are asked to give

16

an opinion in a consultation? You would say you

17

A. Oh, yes, that is taken for

18

granted, when people ask you. They will ask for a

19

curbstone consultation - that is the way we refer to

20

them in medicine. They stop you in the corridor and

21

say, "What do you think about..." --

22

Q. Lawyers get that, too.

23

A. That is when you say, "Take

24

off all your clothes and get up on the table".

25



Bain
cr.ex. (Strathy)

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E9

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Q. Lawyers don't do that -

3

it is worth a thought!

4

A. But you are correct. You

5

must see the patient and the parents, when it comes

6

to pediatrics, and take your own history and do your

7

own assessment.

8

Q. You would agree, then, that

9

there really is no substitute for the eyes, the hands,

10

the ears of the consulting physician?

11

A. Correct.

12

Q. You mentioned -- let me

13

ask you one other thing. Presumably, on a consulta-

14

tion, one of the other things that you would look to

15

would be the opinion of the physicians who had

16

actually been treating the child?

17

A. Oh, yes. And, usually,

18

that -- I think that is the message I was sort of

19

sending yesterday. They have their opinion and,

20

lest it affect you too much, you try to put it out of

21

your mind - not read their letter except other than

22

to say "this patient has abdominal pain". You stay

23

away from what they think it is until you have -- then

24

I go back and read the letter, if I am able to do that.

25

Q. Presumably, once you have

done your examination of the patient, you might also



E10

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speak to the treating physician?

3

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A. One must, if they are going to be paid for it. There must be a written report.

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Q. On the basis of what you have said, doctor, would you not agree that any physician who comes before this Commission, having done the same sort of review that you have, would suffer from the same limitations in the sense of not having been able to see the patient and not having been able to speak to the treating physicians?

11

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A. I think that certainly applies to -- you know, "Does the baby look sick? What is the diagnosis?" That sort of thing. I suppose there may be people, when you make it as broad as people coming before the Commission, they may have a different view on a laboratory result, sort of, a part of that. But, for the overall picture, yes, I would have to say that.

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Q. One last point on that. You have spoken of the importance of the history to a doctor and it is not something we dealt with before. I would have thought, as a layperson, that a history would be a relatively simple sort of thing to do. What is it about a history that makes it --



Bain
cr.ex. (Strathy)

E11

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A. Just in sort of looking at things, to tell you what I do do, with a consultation in my office, I assign an hour to it, and that covers only part of it, but a minimum of an hour. I would say that 45 minutes of that hour are spent talking to the parents about, "When did it start? When was he last perfectly well? What did you first notice?" I suppose you are leading the evidence, if you will, and you take them through everything. I probably could get through the physical examination in ten minutes or so and, then, talking to the parents, sort of summing up a little at the end. So, the greatest bulk of medicine is taking a proper history; "What did they notice? When did it start? Are there any other diseases at home? Are there any famlilial diseases?" It goes on and on and on and on.

The book on history taking that is given out to medical students, if they ever followed it completely, they would probably get through one patient a week. It is called the "little green book".

Q. Dealing with your Group 1, you have your conclusions at page 9 of your report. This is Groups 1A and 1B, and I would just like to read that to you briefly.

You say, at page 9:



E12

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"Of the 37 patients, after careful study of their histories and post mortem pathology reports, I had no real difficulty in attributing death to the underlying medical conditions and complications thereof in 34. There remain 3 patients where there is a possibility that the cardiac arrest was contributed to by an untoward reaction to certain drugs."

Stopping at that point, doctor, may I take it that that opinion is, with one exception, still your opinion today, and the one exception was the Baby Belanger that was pointed out to you yesterday by Mr. Lamek?

A. Yes, that is so.

Q. So, we can take it then that in 33 of those 37, Groups 1A and 1B, you saw no evidence of anything other than natural causes as being responsible for the child's death?

A. That is true except that numbers game I referred to where I was guilty of adding a few more. The fact of 34, the 34 I have sort of listed, of that 34, that applies. I did add a



Bain
cr.ex. (Strathy)

E13

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few more at the end but the same -- that might go
to 38, for example, but there would still be only
4 removed; that sort of thing.

Q. Whatever the number, doctor --

A. That is right. There are
four who come off.

Q. Four that come off but the
remaining, whatever the number be, the remainder, you
saw no evidence of anything other than natural physical
condition as being responsible for their deaths?

A. That is right.

Q. Thank you.

Going on to the second paragraph of
page 9 where you refer to the three exceptions, you
say:

"It should be clearly stated,
however, that all three of these
patients had severe congenital
heart disease and were at considerable
increased risk of dying, when they
did and by that mode."



BmB.jc
F

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2 And those three you referred to are
3 Velasquez, Gosselin and McKeil?

4 A. Yes.

5 Q. So, it is your opinion on all
6 three of those that whatever was ultimately
7 responsible for their deaths they were at a serious
8 risk of dying exactly when they did?

9 A. Well, they were sick babies
10 and when we get down to this point of exactly when
11 they did it is a little difficult for me but it just
12 seemed that there were other, or at least in one or
13 two, there were other things that were being done at
14 that time and the notes and everything else suggested
15 that this was almost a cause and effect relationship.
16 That applies, you know, I don't want to talk in
17 circles, that applies especially to Velasquez who
18 was getting the naloxone and the poor resident who
19 administered it wrote a note which must have been
20 very difficult for him to do stating that he
21 administered the first dose and the baby improved
22 so much but not enough and, so, he gave a second dose
23 and within one minute of the second dose, even though
24 the baby had improved after the first dose, within a
25 minute the baby died.

Q. I will come to Velasquez in



F.2

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just a moment, Doctor.

3

A. Yes.

4

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Q. But in relation to that second paragraph on page 9 I wanted to ask you one question, and I don't know whether anything turns on a word, but you say in the second line that the children:

7

8

" ... were at considerable increased risk of dying, ... ".

9

10

Do you mean they were at increased risk because of the severity of their disease, or what did that mean?

11

12

13

A. Well, I suppose I just threw that one in. I don't think it means anything. I suppose I am referring to, I would think, to compared with normal people.

14

15

Q. So, we can reasonably say "at considerable risk of dying" would be enough?

16

A. Yes.

17

18

Q. Let me ask you about Velasquez and ask you to turn to page 7 of your report.

19

A. Yes.

20

Q. Paragraph No. 12 where you say, three lines down:

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"He also had a pain and was treated with 3 doses of codeine and 2 doses of naloxone and five minutes after the



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"second dose he had a cardiac arrest.

The patient was reported to the coroner and the question was raised as to whether he had idiosyncrasy to naloxone which is very unusual.

Apparently the coroner consulted a toxicologist and he too did not feel that this was likely. Consequent his death is really unexplained and there may be some relationship to codeine and naloxone."

Now, are you able to assist us at all as to what the relationship to codeine and naloxone was in relation to that death?

A. It would be just my opinion, I guess, and that is what you're asking for. I think the codeine was given in proper dosage and possibly because of his - well, because you don't know how everybody reacts even to normal dosage of drugs, somebody can take an aspirin tablet and flake out for a few hours and others chew them all day long. In any case, he became drowsy and they were a little concerned about him. So, the resident was called and the antidote for that is naloxone. So, the naloxone was given and in fact he did, I could if you



F.4

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wish read you his exact note. I don't know whether
that is of any help to you or not?

3

4

Q. All right, I think that would
be of help. Do we have the Velasquez chart, please?

5

6

A. I have written it out. These
are the sorts of things that may be in other notes
that I had and I am just trying to ...

7

8

Q. It may not be out, Mr. Registrar.

9

10

A. Anyway, maybe I can find that.
That is the problem of me doing it my way and other
people doing it theirs. We may have some difficulty
finding it but I will eventually find it. I suppose
this is it and I don't know whether I can read it.

11

12

13

Q. Okay.

14

A. He says:

15

"Because of the lethargy ...".

16

17

Q. Can you just tell us, it is
page 49.

18

A. Oh, I'm sorry.

19

Q. So the Commissioner can find
the reference.

20

21

A. I'm sorry, it is page 49 about
half way down Doctor, I think it is Williams:

22

23

"Because of the lethargy and small
pupils I gave 0.2 milligrams of

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F.5

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"Narcan IV - over the next five minutes the baby became more active, though not fully awake, and the heart rate went up to 130-140 (which is normal for that age). The pupil size increased ... "

Codeine and morphine make the pupils small, so, this was a good sign:

" ... and it was felt that the changes were due to partial reversal of the narcotic analgesic. An additional 0.2 milligrams were given IV but very shortly (in less than one minute, the baby had abnormal opisthotonic ... ", that is when you sort of go backwards. I would have to get out of the box to do it.

Q. Arching almost?

A. He arches his whole body backwards.

" ... posturing occurred, the ECG monitor became flat and a Code 25 was called immediately."

And it was that and I think the people were correct at the time, they checked what was known about their knowledge insofar as Narcan was concerned



F.6

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2 and the books all state there is a tremendous margin
3 of safety that you can give two and three times the
4 dose. However, I think it has been presented in
5 evidence before by Dr. Freedom who came across an
6 article, and I don't know whether the one I have is
7 the same as the one he has; that said such a
8 situation had occurred in a couple of patients,
9 adults who had had cardiac surgery so that the heart
10 was maybe irritable and they developed cardiac
irregularities and fibrillation.

11 So, the paper that I have took I
12 think six or seven puppy dogs and repeated the
13 experiment and he did in one or two got a few little
14 irregularities of the heart.

15 Q Is this with Narcan?

16 A With Narcan. So, I think the
17 feeling was that it was the same as, you know, you
18 could take an aspirin tablet and die and some people
19 are that sensitive to it and I don't think this was
20 in any way an overdose because there are papers just
21 coming out now using Narcan to treat septic shock in
22 adults and all and just tell them to shovel it in
23 by the barreland.

24 So, my feeling was that that note
25 that, you know, the kiddie was improving definitely



F.7

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with the first dose and got so bad within one minute
of the second that I have no trouble with that.

3

4

Q. No trouble ...

5

6

A. Thinking that it was a reaction
to the Narcan.

7

8

Q. I gather that in the medical
community that type of thing, idiosyncratic reactions
to drugs are known?

9

10

A. Sure are, they make your hair
gray; that's why.

11

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Q. Enough said. Doctor, one
point though that comes up in the Velasquez situation
is that it obviously was a circumstance or occasion
when there was some really immediate concern about
the child's condition. There was really a concern
I suppose that the child had gotten too much codeine
by the doctor and it appears that the doctor, really,
through inadvertence, was not aware or gave twice
the sort of dose he should have given; twice the
prescribed dose, let me put it that way?

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A. Well, I was going to say I take
a little issue with it. Yes, the dose he gave was
large but by the books that shouldn't have been what
caused the problem. But your statement is correct,
I don't know, it was certainly by design that he gave
the drug.



F.8

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Q. I don't want to take issue with that, and I think it is in the resident's own note that he made a mistake?

5

A. Right.

6

Q. I am not criticizing you for that but it is the fact?

7

A. Yes.

8

Q. And I simply wanted to ask you, Doctor, in your experience as a physician, do mistakes happen in that sort of circumstance where you have an emergency where you have a lot of concern, a lot of tension, is it understandable to you as a doctor that that type of error in medication can take place?

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A. Yes, it is. Maybe I should say I haven't had a chance to read it. When I was leaving the Hospital this morning somebody handed me the, I think it is the 8th of October Canadian Medical Association Journal, an article from Tel Aviv. I see no reason why it shouldn't occur anywhere. It was just a question - all I have read is the summary and conclusions that appear at the beginning. I would be pleased to get a copy of it for the Court and I can do that because it is in another briefcase there.

23

24

25

I think what they said is that they went to various levels of people, nurses, doctors, in



F.9

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2 the hospital and gave them, told them to figure out
3 this dose, they ordered a particular dose. I don't
4 know what the figure was but certainly, just coming
5 down to simple arithmetic, maybe it is corrected now
6 with computers, but something like 6 or 8 per cent
7 of the people had trouble with their calculations.

8 So, yes, the simple answer to your
9 question is yes.

10 Q. Well, I wonder if you could get
11 us this article you were kind enough to offer, Doctor?

12 A. Yes, I think it is in my brief-
13 case.

14 Q. Let me ask you then, the second
15 child in the exception group, from Groups 1A and 1B is
16 Gosselin. Can you turn to page 8 please of your
17 report, paragraph No. 14, and about half way down that
18 paragraph you say:

19 "During the day he had two brief
20 episodes of apnea ... "

21 just backtracking a bit.

22 A. Yes.

23 Q. "Digoxin was withheld. He
24 was placed on prostaglandin. During
25 the day he had two brief episodes of
apnea around 1900 hours. He then had



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"a sudden episode of apnea leading to arrest in the early morning hours. The doctors were somewhat disturbed and wondered if the arrest might be related to prostaglandin. At autopsy he had severe coarctation of the aorta."

Now, I hope I can summarize Dr. Rowe's evidence in this area fairly, and I am sure Mr. Lamek will tell me if I don't. As I understood his evidence he suggested that one of the concerns, and he noted that the concern came from Dr. Olley, whom he described as one of the world experts in prostaglandin, he suggested that Dr. Olley postulated the theory that the prostaglandin opened up the ductus too rapidly, literally causing a flooding of the lungs. Is that something that you are familiar with, that suggestion in the case of this particular child?

A. I am, as I say, no expert in prostaglandin at all because it has almost come in after my time in the last couple of years.

My knowledge about this, I was expressing, as I said before, other people's concerns. Now, to add to that, however, before this, I don't know, I imagine it was in July, probably, I was talking to Dr. Freedom, because I think it was



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Dr. Freedom who had expressed some concern before,
I'm not sure about that, but Dr. Freedom I think said
that he, and I could be wrong in everything I am now
going to say, I understood Dr. Freedom to say that he
had written to Dr. Gordon Cumming in Winnipeg, who
is the cardiologist out there and who had referred
Baby Gosselin and said he didn't know for sure why
Baby Gosselin had died. He said he received a letter
from Dr. Cumming saying you may not know but I do
because, he said, I have had three patients, I think
was the figure, that the situation that you are
referring to had occurred, that in giving the
prostaglandin the ductus opened so wide that it
flooded the lungs and put them into acute pulmonary
edema and failure.

So, that is my entire knowledge of
it. I don't know whether Dr. Freedom brought that
out. He has not yet shown me the letter from
Dr. Cumming. He had tried to find it to show me that
day and couldn't find it, so, he phoned Dr. Cumming
to send him a copy. So, that is all I know.

Q. Well then, I take it from what
you have said that the theory that I posited to you ...

A. Is correct.

Q. ... is one that you have heard
before?



F.12

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A. Yes, it is.

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Q. And is it a theory that you are comfortable with?

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A. I have to believe them. It certainly has that effect. So, anything else any sick baby that caused - you know, anything that causes a flooding of the lungs and pulmonary edema is an additional risk factor, yes.

6

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8

9

Q. I don't mean to make your job any more difficult than it is, Doctor, but could we ask you whether you might try and obtain that letter from Dr. Freedom?

10

11

12

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A. Certainly. I have been thinking of doing it for a long time.

14

15

Q. I don't think it did come out in his evidence.

16

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Now, the third child in the exception group from 1A and 1B is Baby McKeil. That was the only three of the children in that exception group that digoxin was mentioned by you as the drug that gave you concern.

20

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If you look at page 6 of your report, paragraph 7. You say:

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"He had had some slightly high digoxin levels, one month and two weeks

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"and one day before death. He did have a complicated congenital heart problem and had one attempt at surgery and remained in failure and was about to have further heart surgery (pulmonary artery banding) the parents had been told about the digoxin level on the day before death."

Now, the note that I have is that one month before his death his level was 4.6 nanograms per millilitre; two weeks before his death his level was 3.4 nanograms per millilitre and the day before his death his level was 4.7 nanograms per millilitre and in between those days he had levels in the range of 1.2 to 2.5.

A. Yes.

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Would this be an example of a child in whom the doctors may have had trouble in controlling his medication of digoxin, the administration of digoxin?

A. I think that was my concern, and that is what I referred to earlier, that people react even within the same persons they sometimes react in different ways to drugs. This patient however would seem to have been reacting in an adverse way for a month or two. I suppose, I have got the same figures you have naturally, and I suppose in between times things went along well, so there would seem to be variations within the patient. Making it very difficult, as you see, to try to get an adequate level and not one that was high.

Q. Is it your view that the digoxin levels that the child had in this therapeutic context had anything to do with his death?

A. I can't answer that really, it may have been a contributing factor, but it is a little difficult to think with the levels having been the same previously and nothing had happened that it was a cause and effect relationship, certainly he had a lot of things wrong with him at post mortem,



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2 so it is an additional risk factor I suppose.

2
3 Q. Just to be clear those
4 levels that we are talking about are levels that
5 apparently develop in the therapeutic treatment of
6 the child with the drug?

7 A. Oh yes, yes.

8 Q. And there is nothing in
9 this child, or indeed in Velasquez and Gosselin to
10 suggest that there is any sinister administration of
digoxin to any of those three children?

11 A. Well all I can say in that
12 regard is that there was nothing in any of the notes
13 I read referring to digoxin, nor was there anything
14 in Mr. Cimbura's report.

15 I suppose I asked myself a question,
16 since those patients had post mortem examinations,
17 that I wondered if they did in fact get similar
18 tissues, I was a little surprised that they were
19 not level, maybe they didn't. One baby was from
somewhere else and perhaps they did not keep ---

20 Q. I am simply asking you on
21 the basis of the evidence that you have reviewed,
22 Doctor?

23 A. There was nothing in Mr.
24 Cimbura's notes, or at least nothing in the things
25



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that I had at the beginning which was the preliminary trial, there was no reference to them and nothing in the history.

4

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Q. Thank you.

6

THE COMMISSIONER: Would this be a good time?

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MR. STRATHY: Yes, sir, I will be a while yet.

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THE COMMISSIONER: All right, we will take 20 minutes.

11

---Short recess.

12

---On resuming.

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THE COMMISSIONER: Yes, Mr. Strathy.

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MR. STRATHY: Q. Doctor, I would like to ask you about a group of three children, Baby Hines, Baby Belanger and Baby Lombardo, all of whom to use your words were apparently not receiving digoxin on the ward, but were alleged to have "digoxin" in their tissues. With reference to those three children, again who had been exhumed, whose bodies had been exhumed, I wonder if I could refer you to page 55 of your report, Appendix No. 7.

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Let me say at the outset that it wasn't clear to me who the author of this Appendix was, is it your writing?



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A. It is mine.

3

Q. Your writing?

4

A. My typing, no, but it is

5

mine, yes.

6

Q. So we can take this to be

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your comments, or your in effect thinking to yourself
in a sense?

8

A. My interpretation of the

9

literature I guess, of the papers that I reviewed, yes.

10

Q. With reference to those

11

children would you look at paragraph 11 on page 56,

12

you are talking at the bottom about the Vancouver

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study and the Winnipeg paper and you say:

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"The concept becomes important in that

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if there were a level of 3 to 4

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nanograms in such children who are

17

not on digoxin, then one might assume

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that the level in heart muscle might

19

be 30 times that level or up to 120

nanograms."

20

That is what you were telling us yesterday about the

21

difference between blood levels and tissue levels?

22

A. Yes, and that should be

23

corrected. There was a subsequent paper on infants

24

and the ratio between serum and tissue is on the average

25



1
2 closer to 1 in 150 to 1 in 130, 130 applies to
3 adults, so that just inflates the figures still
4 more, yes.

5 Q. You can boost that 120
6 up to about 600 then?

7 A. Yes.

8 Q. Then you say:
9 "At least two of the babies in the
10 present series had determinations
11 done on heart muscle of babies whose
12 bodies had been exhumed. They had
13 not been embalmed."

14 Do you know who those two were?

15 A. Well Lombardo was certainly
16 the one not embalmed, but I am not certain about
17 whether - it must have been Hines because I didn't
18 know about Belanger until later.

19 Q. You say:

20 "The time from death to exhumation was
21 close to one year. Therefore, if there
22 was any tissue left it must have been
23 very dehydrated."

24 In other words the tissue, water in
25 tissue leaves the body after death over a period of
time?



1
2 A. Either that, or sort of
3 putrefaction sets in if there is much fluid, all of
4 the bugs, like, that kind of a medium can get in.

5 Q. And you say:

6 "If one assumes that 90 per cent of the
7 body is water, then there is a further
8 factor of 10 which might be applied
9 so that levels in heart muscle might
10 well be as high as 1200 which is
11 certainly higher than what was found.

12 These are my own speculations.

13 Certainly the hypothesis must be
14 tested."

15 So you are saying as the body dries and the water
16 leaves it, what you are measuring in the tissue is
17 digoxin, or whatever, maybe substatially inflated over
18 what it was at death?

19 A. I guess if you dissolved
20 some sugar in a cup of water and then let all the
21 water dissolve you would have the sugar at the bottom.

22 Q. So what you are really
23 positing here is the possibility that those tissue
24 levels of "digoxin" may be explained by ante mortem
25 levels of as little as 3 or 4 nanograms?

A. Yes. I guess I was thinking



1
2 even more in terms of - I think in that paragraph,
3 with reference to the dig. like substance. My
4 question that I still don't have an answer to is,
5 and that I alluded to yesterday as having been alluded
6 to by the doctor from Vancouver when he testified
7 here, that he does have some tissue levels. I have
8 no idea what magnitude they are. So I'm just saying
9 if for dig. like substance the ratio holds then one
10 would have to know, but all that was straight
11 postulation.

12 Q. It was the postulation that
13 you have 3 or 4 nanograms per millilitre of dig. like
14 substance. It may account for highly elevated tissue
15 levels on exhumation?

16 A. If the ratio of serum to
17 tissue is the same for dig. like substance, or substance
18 X as it is for dig.

19 Q. And certainly if we replace
20 dig. like substance with dig. the same would hold true?

21 A. The same would hold true,
22 yes.

23 Q. Do you know whether this
24 hypothesis has been tested?

25 A. I understand, as I say the
only thing I know, nothing was mentioned in that regard



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yesterday about tissue levels of dig. like substance at the conference, but as I say reading the transcript about Volume 3 or so here of the Commission's Hearings, the doctor, what is his name, from ---

THE COMMISSIONER: Dr. Seccombe.

THE WITNESS: Yes.

THE COMMISSIONER: I thought he said he didn't have any, but you say, you have read it more recently.

THE WITNESS: I understood him to say he did, and then he was pushed as to what levels they were and he said he couldn't reveal it because the publisher then would not publish it for him.

MR. STRATHY: Q. I think there was some suggestion but in fact I don't recall.

A. Yes. then I think some other people came back at him and asked him again and he hedged.

Q. Do you know, Doctor, whether your hypothesis as to the effects of exhumation, or the effects of testing of the samples long after death, do you know whether that has been tested?

A. I have not heard of anybody doing that, no. I should say, since I am here and supposed to be telling the truth and I think I alluded



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to it before: Dr. Burchell did say the other day in his work that there was one from Belgium where two years after a crime, muscle levels were found or something, that one sentence.

Q. Muscle levels of what?

A. Of digoxin apparently.

Q. In tissue?

A. Yes, in muscle.

THE COMMISSIONER: In the muscle, that was in the muscle?

THE WITNESS: Yes, okay.

MR. STRATHY: Q. Doctor, before I leave Groups 1A and 1B and I just want to do a bit of a short cut here. I was going to ask you about four children namely Hoos, Onofre, Turner and Warner. In your comments on those children you make reference in every case to the post mortem examination as explaining the cause of - explaining the death. You suggested in some of the cases that the doctors really at the time of death were not entirely sure why the child died, but on post mortem it was a satisfactory explanation as developed.

I take it from your evidence that that quite frequently is the case in medicine, that autopsy will show, will answer the question as to why a



1
2 particular child or person died.

3 A. That is a tough question.
4 I am forever needling my friends, pathologists about
5 this, because except for certain circumstances they
6 cannot say 100 per cent that the patient died from
7 what they found, and that the exceptions to that
8 certainly are somebody who has a great big vessel that
9 ruptured and all his blood is in his abdominal cavity,
10 that is clear; an ectopic pregnancy the same thing, or
11 a ruptured spleen the same thing.

12 Very often one may find a lot of
13 disease which could well explain that, but I guess they
14 would get up to that 99 percentile and then say, gee
15 there is a 1 per cent chance. Even though you had
16 a coronary and dropped in the court room and you
17 have a coronary artery plugged, the friend, or the
18 pill you took for the pain in your chest may appear,
19 and they wouldn't know.

20 All I am saying is I like the word,
21 I would rather have that the findings were in keeping
22 with rather than explained.

23 Q. All right, in keeping with
24 so that whatever the case, and I think your point is
25 a fair one, a doctor after an autopsy may have a much
more satisfactory explanation for death than he did



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before the autopsy?

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A. It certainly is, it is the basis of clinical medicine, it is pathology, and people wonder why we insist in getting post mortem examinations in hospital, it is to point out things we don't know and things we have missed and whether our hypothesis were correct.

Q. Is it unfair, in many cases after an autopsy you will find that the disease was much more severe than you originally thought?

A. I think that's ---

Q. I am not saying any variation by any means, but it does happen, does it not?

A. Oh yes. We get surprises that sometimes it is not even the thing we thought we were dealing with.

Q. So you find in fact what you thought was the important disease was in fact only secondary?

A. Yes. I don't want to take up the time of this Commission on anecdotal things. I vividly remember someone coming in with acute trachyitis or croup or whatever, or whatever you want to call it and it does have some mortality, and fortunately we do not have much in the way of mortality,



1
2 and then this child died, and low and behold what the
3 problem was was not a virus causing the croup but
4 a rather malignant tumor in that area that had suddenly
5 got to the point of no return with no previous
6 symptoms, so there are those things.

7 Q. Can I turn now to some of
8 the children in the Group 2, and specifically Baby
9 Cook to begin with. Let me ask you to look at page
10 39 of your report, which is part of Dr. Spielberg's
11 Appendix 2. I say Dr. Spielberg, but I think perhaps
12 it was slightly uncertain as to whether Dr. Spielberg
13 or Dr. MacLeod or whether the two of them collaborated
14 on preparing this.

15 A. I think probably the latter,
16 either one wrote it and the other one agreed to it,
17 that would likely be how it came about.

18 Q. If you would look at
19 paragraph (D) on page 39 at the top of the page the
20 comment is made, sub paragraph (i):

21 "All blood levels obtained can be
22 explained by administration of a single
23 file of digoxin -- I am sorry, Mr.
24 Commissioner.

25 THE COMMISSIONER: Oh yes, thank you.

Q. This is sub paragraph (i):



ANGUS, STONEHOUSE & CO. LTD.
TORONTO, ONTARIO

Bain, cr.ex.
(Strathy)

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"A single of digoxin (of most infants,
a single vial of adult strength,
0.5 mg.) shortly before death by
intravenous bolus."

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"(ii) The data do not permit exact timing of administration. Does could have been given prior to, or during, resuscitation efforts. The extremely high level achieved in one infant (Inwood) is strongly suggestive of administration very near the time of death. This is also suggested in several places in the testimony. An important difference here, however, is that we believe the level can be accounted for by a single vial rather than multiple vials. An intra-venous bolus of 8 mg. of digoxin (32 ml) is physically highly unlikely and kinetic modelling of an infusion is similarly unsatisfactory to explain the level."

Now, I think when the doctors were referring to the 8 mg. of digoxin, they were referring to one of Dr. Hastreiter's propositions as to how the dosage might have been administered, or the amount of the dosage. And, certainly, Dr. Spielberg's evidence was that the levels that we are concerned with here in,



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H2 2 specifically, Cook, and he mentions Inwood, could
3 have been explained by a single vial of adult digoxin
4 intravenous.

5 Have I correctly stated your under-
6 standing of what Dr. Spielberg's views are?

7 A. Yes, that is correct.

8 Q. Let me take you further
9 down the page:

10 "(iii) Therefore, several different
11 hypotheses have to be considered in
12 interpreting the blood levels in
13 terms of amount, timing and intent.
14 It would seem unlikely that
15 administration of multiple vials
16 by accident could occur."

17 Do you agree with that observation?

18 A. Oh, yes, especially when
19 you are getting to talk about 20 to 200 vials, it
20 would be --

21 Q. Let me suggest, even if you
22 were talking about 10 vials, it would be unlikely that
23 it would happen accidentally, on one patient?

24 A. I would certainly agree.

25 Q. "If, however, a single vial
can account for the levels achieved,



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then either accidental or intentional overdose is a possibility. Vials of digoxin resemble vials of many different emergency medicines, and there is ample literature on confusion of ampoules of different drugs in a variety of clinical circumstances."

Let me ask you first, do you agree that vials of digoxin resemble vials of many different emergency medicines?

A. I cannot answer that. I would suspect so because there are a limited number of vials. I think what has to be done, if it has not been done by the Commission, perhaps, far be it for me to suggest, but to get a bunch of vials and look at them. I plan to do that myself; I have not done so.

THE COMMISSIONER: We have some.

MR. STRATHY: We have some, Exhibit 224.

THE COMMISSIONER: Tell me, is there a difference between an ampoule and a vial?

THE WITNESS: Not exactly, no. People use it a little differently -- at times, they use the terms overlapping; usually one says -- I use



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them interchangeably even if they are multiple-dose vials, whereas "ampoule" usually refers to the single but, then, there are single-dose vials and, probably, there are multiple-dose ampoules.

MR. STRATHY: Q. Doctor, Exhibit 224 is simply a collection of five drugs in ampoules that have been supplied to the Commission, one of which is digoxin, one of lanoxin, on the far left; others are atropine, heparin, atropine sulfate and adrenalin.

A. I would have a little bit of difficulty. I am not red/green colour blind but one of them, obviously, is depending on colour coding, which would not work too well with a red/green colour blind person. And I think in the many, many arguments we have had about this and discussions about this, we feel that probably they should put them all the same, if you will, and insist on people reading them. But when you get into the darkness of night or difficulty with your vision, it is easy to see - and especially in those, I might, under stress, make a mistake.

Q. Just looking at these, and I don't think they were picked with any forethought - they were picked, I believe, partly on request and partly at random - you have to agree they do resemble



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each other in many respects?

A. Yes. They are clear fluid
and clear glass and one must read it.

Q. Do you also agree with
Dr. Spielberg's proposition that the literature is
full of examples of confusion of medication?

A. I don't know whether it is
full but there are a lot.

Q. Certainly. Let me ask you,
in your experience, are you familiar with examples of
confusion of medication?

A. Yes, I am.

Q. Do you agree with Dr.
Spielberg's proposition that, in a highly stressful
situation, such as a cardiac arrest, where you have
numerous medications administered to a child - in
Cook, you mentioned some 25 in a very short space of
time - do you agree with Dr. Spielberg that there is
certainly a possibility for medication error in that
context?

A. Yes.

Q. Now, with respect to
Justin Cook, doctor, I just have one further question.

If you look at pages 41 and 42 of
your report - that is Appendix 3, dealing with the



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digoxin data - you were putting forward a hypothesis, I think yesterday, that the administration of the dose to Justin Cook may have occurred sometime up to an hour or more before his death by virtue of the fact that you had an "ante mortem" level of 72 and a "post mortem" level of 48 . Am I right in interpreting that in that fashion?

A. Yes, I think that is correct in interpreting what I said. It is possibly not correct in what I should have said, because I get a little mixed up in terms of arrest and death and when death really is.

The first level was at 4:30, when he was into the arrest, and the next one was at six o'clock, shortly after things were terminated. One was 72 and the other was 48 or --

Q. 46.

A. 46. If the half-life is half an hour, then one would have said, if at four o'clock it is 72, it should have been down to about 15. But then you have an artificial situation of somebody being kept alive by artificial means almost and how good was the circulation. So, really, I guess, without knowing what the blood level was half an hour before the arrest, I have trouble making a statement



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because --

Q. Even as far as you go, I would like to take issue, if I may, with your observation. Let me tell you why.

If you look at page 41, about three-quarters of the way down, you have that level of 46. That is T-27.

A. Yes.

Q. Do you see that? This is Mr. Cimbura, "Serum from Justin Cook, 22nd of March, 0600, 46 nanograms". So, that is apparently the sample at the end of the arrest.

A. That was his determination. As you know, Dr. Ellis had a level similar; 72.

Q. If you go over the page, page 42, you have Dr. Ellis' data at the middle of the page, and you say:

"Specimen on the 22nd March at 0430 hours (ten minutes after arrest), therefore pre-mortem..."

I suppose you would maybe say "pre-mortem" in quotes?

A. Yes.

Q. You say:

"...level (greater than 5) and serial dilution level was determined



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to be 72."

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That is by Dr. Ellis' test?

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A. Yes.

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Q. Another specimen at 0600

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hours post mortem, the level was 68.

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A. Yes.

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Q. My suggestion to you,

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doctor, is that it is more scientific and more

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appropriate to compare apples and apples and compare

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Dr. Ellis' two measurements of 72 "pre mortem" and

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68 "post mortem" than it is to compare Dr. Ellis'

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"pre mortem" with Dr. Cimbura's "post mortem", given

what we have heard about the variation in measurements

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from system to system.

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A. I think that is a good

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hypothesis. I think Mr. Cimbura and Dr. Ellis, or

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some clinical pharmacologist, who looked at their

methods or whatever --

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Q. All I am suggesting to you --

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A. It sounds reasonable, if

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they are using the same methodology, that two

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specimens done by the same lab should be the correct
ones.

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Q. That would presumably be

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in accord with Dr. Spielberg's hypothesis that

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administration was much closer to death, if you have the level of 72 pre mortem and 68 post mortem?

A. I would have said the opposite.

Q. You would say it would go up?

A. No, it will go down, because of the half-life, because if the patient is kept alive and you have 72 at four o'clock, then, within half an hour of that time, the blood level should be dropping down to half that level and, in another half hour, it should be dropping down to half that again, as it disappeared into the tissues.

Q. That is in a living patient?

A. Well, I mentioned that point. I don't know -- you know -- obviously, I don't know how long they kept his circulation going. How long was it?

Q. We have got the arrest starting at 4:20, and I don't have the time it finished.

A. I probably have it here.

MR. LAMEK: 4:56.

THE WITNESS: 4:56, thank you.

MR. STRATHY: Q. So, it is only 36 minutes that the arrest --



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A. So, if there was good circulation, even in that half hour, one would have expected it could drop to one-half the level of 72.

Q. I take it, really, this is something you would prefer to leave to Dr. Ellis and Mr. Cimbura?

A. Dr. Spielberg, I think, is probably the correct one.

Q. Can you refer next to Jordan Hines - and I don't want to spend a lot of time on this, because I know that Mr. Tobias is anxious to deal with it, but I wanted to put to you something that Dr. Hastreiter has said with reference to Jordan Hines.

Jordan Hines, I am sure you will recall, was the SIDS child, or what is suggested was a SIDS case.

A. Yes.

Q. I have Dr. Hastreiter's case reports here. I don't know if you have had an opportunity to read them.

A. I think I did a long time ago but I have completely forgotten them. Yes.

MR. STRATHY: Mr. Commissioner, I



Bain
cr.ex. (Strathy)

H11 2 think I can just read this to the witness rather than
3 have it before you.

4 THE COMMISSIONER: Read it to me,
5 too, because it is not an exhibit.

6 MR. STRATHY: I know. So, if I may
7 just read -- I am reading from page 48 in reference
8 to Hines.

9 Q. I am going to be asking
10 you, doctor, about the heart rhythms and the fibrilla-
11 tion in the context of this.

12 He is summarizing the hospital course
13 and he says:

14 "He had brief periods of apnea
15 with bradycardia and subsequent
16 tachycardia. During these episodes
17 he looked sick and appeared lethargic.
18 Ecg was reported to show bradycardia
19 and PAT with 2:1 A/V block. On
20 8-3-81..."

21 Which is the date of his death.

22 "...infant had a sudden arrhythmia
23 at 04:10 hr., with apnea lasting
24 15 to..."

25 I'm not sure what that is.

A. "Seconds".



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Q. "...seconds. Bradycardia, decreased cardiac output. This led to ventricular tachycardia and fibrillation. Defibrillation, CPR and other resuscitative measures were used but infant died at 04:45 hr."

Now then, as to cause of death, Dr. Hastreiter says:

"No satisfactory cause of death was found. SIDS does not explain the arrhythmias."

What I wanted to ask you was, in your view, how do you explain the arrhythmias and, at the same time, posit SIDS as a cause of death?

Do I understand, first of all, that, in fact, there is a theory that says that ventricular fibrillation may accompany SIDS?

A. Yes, there is.

Q. And I know, doctor -- you mentioned, I think, an Italian group and a Texan group --

A. I think you will find them referred to in the reprints that are out, and the one I put out this morning, you probably do not have yet.



H13

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2 by Warren Guntheroth, a great deal of it is related
3 to the arrhythmias, and I think the reference will
4 be there as well and certainly will clarify the issue.

5 Certainly, arrhythmias may be a
6 prominent feature and whether they are primary or
7 secondary is not known. I think Dr. Guntheroth would
8 think they were secondary to something else. But the
9 fact is that they do occur.

10 Q. And when you are talking
11 of the arrhythmias, are you talking about both brady-
12 cardia and tachycardia?

13 A. Yes, and fibrillation and
14 premature ventricular beats.

15 Q. So, in your view, all those

16 A. May occur.

17 Q. Arrhythmias may occur in
18 SIDS?

19 A. Yes. You will find quite
20 a reference to it, too, in the reprint that was
21 handed out by Dr. Valdes-Dapena, and she specifically
22 refers to, I think, the Italian group, who have been
23 putting it forward as their primary theory for seven
24 or eight years.

25 THE COMMISSIONER: Which exhibit
is that?

THE WITNESS: I don't know the
number - not from today. It was previously...



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MR. ROLAND: I think the paper the doctor is referring to is Exhibit 162 which is a review article and it is by Maria Valdez-Depina who is the author of that.

THE WITNESS: Yes.

THE COMMISSIONER: Doctor, you might take a look at it and see if that is the one.

THE WITNESS: What she says on page 605 - I have it, thank you - page 605 of the article she says:

"For the last four or five years Schwartz of Milan, Italy and the University of Texas Medical Branch in Galveston has written repeatedly about the hypothesis, although, the mechanism responsible for some infant deaths may be respiratory, it is likely that in other instances it is cardiac probably due to ventricular fibrillation and possibly dependent on the sudden increase in sympathetic activity leading to imbalance of cardiac innervation."

So that in a nutshell there is a great deal of - and Dr. Guntheroth in his subsequent -



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I don't know whether there is a subsequent article or not, goes into it in a little more detail. He thinks it is secondary, but nevertheless it is there, it may be there.

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MR. STRATHY: All right.

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THE WITNESS: There is a - well, perhaps we will come to that later, I don't want to ...

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MR. STRATHY: Q. Well, if you have something to add by all means do, Doctor.

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A. I don't think it is of importance right here.

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Q. All right. Turning to Janice Estrella. You obviously have concerns about the reliability of the samples taken from that child. Now, the questions though that I wanted to deal with had to do with her digoxin levels during life and those are found I believe at page 15 of your report, Exhibit 48.

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At about two-thirds or three-quarters of the way down the page where you say:

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"On the 7th of January she developed bradycardia (slow heart) and respiratory arrest and a Code 25 was made. Her apex rate was down to 40/50. Her blood digoxin level was found to



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"be more than 5 and digoxin was

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discontinued. On the 8th of January

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the digoxin level was greater than

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4.7 but on dilution was found to be

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7.8. At 0930 hours on the 9 January

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level was 2.5."

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So, you have a high of 7.8, I have a
note from Dr. Spielberg's evidence that on January 7th
it was as high as 9.4 in that child.

10

A. I think that was brought up

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yesterday and I wrote it in yesterday and on that

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greater than 5 Dr. Ellis had a 9.4.

13

Q. So, this is a case of a child

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apparently on therapeutic digoxin and we have a level

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that is as high as 9.4. My question is, have you seen
that phenomenon before in the therapeutic treatment of

16

children with digoxin?

17

A. I have heard about it.

18

Q. Levels as high as 9.4 or 10?

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A. Yes.

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Q. So, just to be clear, where

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have you heard about it?

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A. Well, I think - I don't know

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whether it has just been gossip but I have a feeling

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that in Dr. Hastreiter's paper, and I'm not sure

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whether it has been entered but I referred to it yesterday, I have a feeling there is a reference there but I don't want to swear to that. I may be able to answer that in one second myself and otherwise we will have to read it, I don't want to accuse him of anything.

THE COMMISSIONER: Could I just interrupt for a moment. We did not hesitate to put in Dr. Bain's report long before Dr. Bain appeared on the scene. Why have we been reticent about Dr. Hastreiter's report?

MR. LAMEK: Well, we haven't marked it as an exhibit but it has been distributed to all counsel, Mr. Commissioner. There is no reason why it can't be marked as an exhibit.

THE COMMISSIONER: No, the only thing is, it is a surly comment, because when you distribute it to all counsel you don't necessarily give one to me.

MR. LAMEK: Oh, you don't get one. I'm sorry, I will put you on the mailing list, I am sorry.

MR. STRATHY: Better still, why don't we just make it an exhibit.

THE COMMISSIONER: There is no reason why we couldn't.



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MR. LAMEK: None at all.

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THE COMMISSIONER: If all counsel have one and if Dr. Bain could just identify it.

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MR. LAMEK: I don't know whether Dr. Bain could identify the report?

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THE WITNESS: I was referring more to a paper that he wrote recently.

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MR. LAMEK: Yes.
THE WITNESS: And I may have it filed somewhere here.

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THE COMMISSIONER: Well, I am sorry I raised the issue. It was just a surly comment.

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THE WITNESS: But in any case, certainly as I say, there is no question in my mind that recently we have had little patients who took granny's pills and maybe Dr. Spielberg talked about them, who are sitting up and perfectly well with a level - I think he had one recently with a level of 14, but I'm not talking about --

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MR. STRATHY: Q No, I'm concerned, Doctor, about in the therapeutic context.

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A. Yes.

Q. We have seen, for example, Baby Murphy, you mentioned the inquest, for example.

A. Yes.



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Q. Of a case where a child has had
in the therapeutic context a level as high as 9 or 10?

A. Yes.

Q. And my question was whether you
had heard of that in a therapeutic context?

A. Well, my answer is the same as
before, yes, I believe I have but I have a little
difficulty swearing to it. I see no reason why it
couldn't occur.

Q. Well, just taking Inwood and
taking that level of 9.4 on January 7th.

MR. LAMEK: Estrella.

MR. STRATHY: Excuse me, Estrella,
thank you, on January 7th. Let me just suggest to
you that suppose that child had died on January 7th
from her medical condition and suppose a post mortem
sample had been taken from the child at that time
or shortly after death, given what we know about this
post mortem escalator or elevator effect, we might
well expect to find a level of 25 to 30, or let us
say 20 to 30 in that child's post mortem, would that
be fair?

A. I don't know what figure they
are using now. The one that I just sort of heard
originally and I stick to is 2, and I believe some



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have put a range of 1-1/2 to as high as 10, but I think 2 is the thing that I go by.

Q. All right. So that given a level of 9.4 on January 7th we might expect to find a level using 2 of 19?

Can you just say yes for the record?

A. I'm sorry, yes. She can hear me nodding here I think.

Q. And in any event, Doctor, that level of 9.4 that we see on January 7th, while it may be of concern to you in terms of the therapeutic treatment of the child is not an incredible revelation to you in terms of digoxin in the way it works?

A. No, it happens with the individual thing and, as I recall, there was a cardiac or respiratory arrest or some sort of an arrest called at about that time. So, it was having, perhaps have some effects but it wasn't, it didn't kill her as we saw.

Q. Yes.

A. So, that is all I can say is that I don't like the level at all but certainly there are cases in the literature that people with that level have been fine but on the other hand there are cases in the literature where people of that level who have not been fine.



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Q. Thank you. Let me turn briefly then to Baby Pacsai where we see in that child a level, and your data concerning digoxin are at page 48 of your report, the second paragraph from the bottom you show a level of 9.4 and Dr. Ellis found a level of 9.4 ante mortem and then in the bottom paragraph the post mortem blood samples of 25 and 24.

Now, that is basically consistent, is it not, with the ante mortem level with the Estrella ante mortem level.

A. Yes, if you are taking - yes.

Q. Identical in fact?

A. Yes.

Q. And it is also close to ---

THE COMMISSIONER: I'm sorry,
I'm sorry.

MR. STRATHY: Q. The Estrella level that the witness referred to was 9.4 on January 7th and we have Pacsai at 9.4.

THE COMMISSIONER: All I'm saying is was the Estrella level at 9.4, wasn't that a precise reading, whereas, the Pacsai is greater than 9.4.

MR. STRATHY: Well, actually, I'm



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sorry, it is greater than 10 but then in brackets it is (9.4) and I think we have heard evidence of just over 10 ---

THE COMMISSIONER: I'm sorry, Mr. Shinehoft has something to say.

MR. SHINEHOFT: Well, yes, I would like to point out, Mr. Commissioner, and I don't want to interrupt my friend but there has been nothing in terms of this baby's ante mortem level that has been given other than it was greater than 10 and that the computer extrapolated it I believe to be 10.6. So, I believe my friend is in error when he gives a level of 9.4 where he cites that as the ante mortem level.

THE COMMISSIONER: Well, yes. I think it is greater than 10 or what they mean by 10 is in some calculations that is 9.4, greater than 9.4.

THE WITNESS: Yes, sir. If I may speak to that and I spoke to it yesterday.

THE COMMISSIONER: Yes.

THE WITNESS: That was the same with regards the 5 level and 4.7.

THE COMMISSIONER: Yes.

THE WITNESS: Because 10, roughly



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they mean 9.4 just as when they gave greater than
5 it was 4.7 in our particular lab and then there
is the same figure. It isn't one is precise and
the other is not.

MR. STRATHY: Q. Well, are we
to take that then as greater than 9.4?

A. Yes, it should be.

Q. All right. Let us suppose
that it is 10.6, Doctor, as Mr. Shinehoft says may
have been extrapolated by the computer. Suppose it
is 10.6, that would be reasonably consistent, wouldn't
it, with post mortem levels of 24 and 25?

A. Yes, it is, on the figure
that we are using of 2.

Q. And again that figure of 10
or 10.6 would be reasonably consistent with the
levels we saw in Estrella and, more recent, the
Murphy child?

A. Yes. I had forgotten the
data on Murphy but I understand, I think that is
satisfactory, yes.

Q. Well, my recollection is that
it was ---

A. It was just about the same,
17 or something.



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Q. Now, Dr. Spielberg postulated with respect to Baby Pacsai that there may have been an abnormal pathophysiology with respect to that child in a similar way to this child Gary Murphy who was the subject of a recent inquest. Do you know anything about that phenomenon, pathophysiology?

A. Well, first of all, with Gary Murphy my understanding there, but I would have to refresh my memory a little bit, but I think it was that he was in the process of dying for some time and things were falling apart and there was leeching of enzymes which were giving up the ghost and things were leeching out. I think when Dr. Spielberg - pathophysiology is just another word that means altered, or whatever, physiology, the normal function of the human body, pathophysiology is an upset and that. I think what Dr. Spielberg was saying was that there was a high potassium at various times and the explanation of that has not been readily forthcoming.

I think if one were to pin him down he would think there was maybe something wrong with the cell membrane. I have shown to state that my - and all anybody is doing here is guessing because there isn't going to be proof. All I was suggesting was transient adrenal insufficiency.



Bain, cr.ex.
(Strathy)

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Altered pathophysiology, we know there are instances where potassium can go up just by itself and there is a condition called familial periodic paralysis and one can, from a low level, for no good reason at all the blood level of potassium plummets and the patient can't move, whereas, on the other hand, it goes up and the patient can move.

I had a patient once who used to go to a Saturday night dance and she didn't drink, so, she would have a coke and as sure as she drank a coke she would become paralyzed because sugar will precipitate it and everybody thought she was drinking hard liquor.

So, that happens and it happens - so I think what Dr. Spielberg was saying there are things that control potassium in and out of cells we don't know. He suggested altered physiology of potassium mechanisms or pathophysiology.

Q. Well, let's try and be clear on one thing. Is what you posit transient adrenal syndrome, is that different from abnormal pathophysiology?

A. Not to my mind it isn't.

Q. All right.

A. They are not synonymous



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necessarily but it is an upset in physiology, it is one that is pathophysiology can be thought of in the terms of almost towards syndrome rather than...

Q. And to your mind that transient adrenal syndrome provides an adequate explanation for the death of Pacsai?

A. Well, I would want again, as I repeatedly said yesterday in my conclusions, that this had to be looked at, but if on the other hand, I don't know my exact wording, on the other hand we are told that that has to be studied then I would withhold further comment until such a time as the report came in from the experts.

But if you are asking me whether adrenal insufficiency can cause death, yes; if you're asking me if transient adrenal insufficiency can cause death or contributes to it, nobody can call it transient if you die.

Q. All right.

A. So, we get into semantics.

Q. Well, let me ask you this.

Can transient adrenal insufficiency account in your mind for the levels of digoxin which were apparently found in Pacsai?

A. Again, I can only speak to the



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fact that when the potassium goes up we have reason
to believe now that the dig. can go up as well. In
the only other case that I have exact figures on,
the levels went with a high potassium, the digoxin
level, I think I used the figures 1.9 to 5 point
something yesterday. So, that is at least double.

So, on the basis of that one case
that we have, yes, that can happen.

MR. STRATHY: All right, thank you,
Doctor.



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MR. HUNT: I have no questions,
Mr. Commissioner.

THE COMMISSIONER: Mr. Young?

MR. YOUNG: I have no questions,
Mr. Commissioner.

THE COMMISSIONER: Yes, Miss Symes.

CROSS-EXAMINATION BY MS. SYMES:

Q. I would just like to ask you
some questions about Baby Cook, and the chart, I
believe it is Exhibit 116, do you have it in front
of you, Dr. Bain?

A. No, I don't.

Q. And perhaps I would ask you
to turn to the clinical notes which I believe are
on page 26 and 27 of the chart concerning March 21st,
1981.

Dr. Bain, on March 21st at about
1800 hours I gather this child had a blue spell that
was relieved by intravenous Inderal or propranolol?

A. Propranolol, yes.

Q. Are they the same thing, is
that right?

A. Yes.

Q. Could you explain what
Inderal or propranolol does to relieve the blue spell?



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3 A. Yes. I guess I will have to
4 go back a little bit and say what the blue spells do
5 do. We have always, since patients with common
6 tetralogy of Fallot and since patients with
7 tetralogy of Fallot usually don't have heart failure,
8 we used to call them anoxic spells in these little
9 people, they had a characteristic of when they would
10 get such a thing to stop and this would improve the
11 blood flow. So all we could postulate was that some-
12 thing was further interfering with proper blood
13 flow out to the lungs, the lungs are bad enough to
14 begin with, but something was further interfering.
15 So it is now felt that that is sort of called
16 infundibular muscle just out in the part of the
17 heart where the artery is going out, I guess that
18 is good enough to say, that you get a further spasm
19 of that almost so that you get less blood going out
20 to the lung and then it is shunted through so it
21 goes without being oxygenated and it goes to the
22 rest of the body and you get a severe blue spell.
23 Propranolol or Inderal appears to release that spasm.

24 Q. Now, when the baby gets
25 this drug, Inderal IV, how long does it last, the
effects of it?

A. I'm sorry I can't answer that



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how long it lasts, because very often if you break the cycle, and we used to break it with morphine or just by calming the child down if it happened to be upset and those things and it is over with. So to my mind with the propranolol I don't know what the half life of propranolol is and someone else would have to answer that. I have always assumed it is a relatively short lived thing, but the spell is over with. I guess one might look at it from the point of view after that spell they ordered it then on a continuing basis, did they not?

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Q. Yes. I gather ---

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A. And so that gap would tell you how long it lasts, and I don't know that.

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Q. I gather in fact the baby was receiving propranolol before the 1800 hours on March 21st and was to continue to receive propranolol after that date. If we look at the chart we can see that the baby had received propranolol on the previous day.

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A. I have summaries, of summaries, of summaries for my own benefit here, and I will see if I can answer that.

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THE COMMISSIONER: I take it somewhere in this record there is ---

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MR. LAMEK: Page 15 I think,
Doctor, Q8H, at least that answers the frequency
question.

THE COMMISSIONER: Page 17 is the
medication record.

MS. SYMES: Q. The bottom page,
page 13 shows that the baby is to receive the
propranolol ---

THE COMMISSIONER: Did the baby
come in, it came in that day?

MS. SYMES: Yes.

Q. 4 milligrams, Q6H.

THE COMMISSIONER: If you look at
17 you will see the actual administration; 2 o'clock
on the 21st and at 6:00 p.m. on the 21st.

MS. SYMES: Q. So this baby then
when on admission to the Hospital the doctor's order
is for propranolol 3 milligrams PO is by mouth,
Dr. Bain?

A. Yes.

Q. And Q8H, that is every eight
hours, is that right?

A. What time is that order written,
do you know?

Q. It was I gather first given at

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0200; just a second, if I could find it for you.

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A. Yes, I have written in my tracks, it looks like the first medication was on 21st of March at 0200 by mouth.

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Q. And it appears then to have been given about - Doctor, if you turn to page 15, I think that is an order, propranolol the first one, Dr. Bain, appears to be the doctor's order, propranolol 3 milligrams PO Q8H?

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A. Yes, I see that.

Q. And then we have the next page, which I believe is back on page 13, Dr. Bain, in the second form, that is that the propranolol was held. Would that be because the baby was to go to have a catheterization?

A. I suspect, my recollection of this baby and looking at it, was when the baby came in and for a few days before he had been pretty blue, and this is what precipitated his coming in. I remember in some of my notes saying within a couple of hours of coming in the baby had pinked up and I made little notes to myself, was that before he got anything. I suspect maybe the order was written that he pinked up on his own so they said, hold it.

Q. We know that this baby had a



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catheterization on Saturday, March 21st.

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A. Yes.

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Q. Is it standard procedure to
hold propranolol before the operation?

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A. I wouldn't have thought so, but
I don't know.

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Q. There is an order that says
"Stop propranolol 24 hours pre-op".

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A. Oh, pre-op?

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Q. That's what it says, doesn't it,
on page 13?

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A. I wonder if that means, I guess
I don't think of a catheter as being an operation. I
suppose that is written before the catheter, or was
that referring to the operation that had been planned?

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Q. It is not clear, it says
"Standing orders for cardiac ...".

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A. If it says it I don't want to
make an issue of it because (a) I don't know; if that
is what it says that must be their routine.

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Q. When this baby had a blue spell,
I gather that what they did was to give the
propranolol and it had good effect.

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A. That was the one at six o'clock
when the resident was called?

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Q. Yes, 1800 hours.

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A. Yes, that is my understanding.

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Q. In other words it would have

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stopped this spasm that you have described?

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A. Yes.

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Q. But nevertheless they obviously

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were very concerned about this child because we know
that the child was placed in constant nursing care,

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that is one to one nursing.

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A. I believe that is so.

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Q. And in fact it was ordered to

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keep Inderal at the bedside?

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A. Yes, I recall that.

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Q. That is on page 27.

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A. Yes.

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Q. Now, I understand that the

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baby then got into difficulty, this is again on page 27

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at 0345 hours, 3:45 in the morning on the 22nd, the
bottom note, Dr. Bain?

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A. Yes. I think I was just trying

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to get to my own notes because they always ring a
bell with me better, and if I turn to a page incorrectly,
but I will be right with you. I am sorry, what page
did you say it is in your notes?

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Q. Page 27 at the bottom of the

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page.

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A. All right.

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Q. Apparently this child got into difficulty at 3:45 in the morning?

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A. Correct.

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Q. Given the problems that had occurred, that is the blue spells on admission, and the blue spell that occurred at 1800 hours, is it fair to say, Dr. Bain, that another blue spell was not unexpected?

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A. Oh, insofar as blue spells in tetralogy there is no predicting when they are coming.
Certain things will precipitate them but they may come on their own and you can't predict, so, yes.

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Q. And Doctor, because another blue spell might be expected that is probably why the doctor ordered constant nursing care and that Inderal be kept at the bedside?

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A. No question.

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Q. So the fact that this baby had another blue spell in the middle of the night, although they had solved the problem at 1800 hours, was not unexpected?

A. Correct.

Q. And it is charted then that this child was given .4 cc, or 4 milligrams of Inderal



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at that time, that is 0345, and then another 0.2 milligrams five minutes later, which would be I guess at 0350, that is the doctor's chart at page 27?

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A. That is fine, yes.

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Q. And that they had no effect, that is the first 0.4 had no effect?

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A. Yes, that is my understanding.

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Q. And the one that was given later had no effect either?

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A. Yes.

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Q. Dr. Bain, is that unusual in this particular situation, that is we know at 1800 hours that the baby had a blue spell and that the administration of Inderal solved the problem very quickly. You agree I have fairly characterized what happened at 1800 hours?

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A. Yes, I agree.

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Q. Do you think it is unusual that when another blue spell occurred at 0345, that the giving of Inderal didn't solve the problem, in fact it had no effect?

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A. That would seem unusual to me, yes. I think for this reason; I know Inderal doesn't work in them all by any means, it is not a panacea. Therefore, if it had been the first dose and it didn't



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work I wouldn't - that wouldn't bother me. However,
it was given before, unless it was just coincidence
that the baby was going to get better that time
spontaneously, because they do, then I would have
expected it to work the second time, but people are
"ornery cusses", there are exceptions to that, but
that is what I would have expected, yes.

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Q. So the fact that the baby did
not improve at 0345 or 0350 with Inderal is surprising
in light of what happened at 1800 hours?

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A. Yes.

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Q. Now, I want to ask you --

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A. But I would like to qualify
that a bit. You know, a lot of things I am not and
I am not a cardiologist and they may answer that
question in a completely different way that Inderal
is completely - it may work one time and not another,
but I am guessing, I am saying I am basing it strictly
on that sort of knowledge and no real medical knowledge.

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Q. Dr. Bain, I am going to ask you
a hypothetical that is based on a medication error,
and of course it is strictly a hypothetical.

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If the drug that was administered at
0345 and 0350 were not Inderal; if by mistake it
were digoxin; and in fact the doctor at 0345 had



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given digoxin rather than Inderal in error, would you have expected, in my hypothetical, a different clinical observation than what is on page 27 of the chart?

A. I guess, well that's a tough one. I guess all I can say to that is you certainly wouldn't get any propranolol effect.

Q. Exactly.

A. Okay.

Q. That is what I am trying to explore, is that if digoxin were given in error.

A. Yes, instead of ---

Q. Would digoxin ---

A. The digoxin, I have never heard of it being used for blue spells, no.

Q. In fact I believe it is contraindicated in this particular case.

A. It is said to be, yes.

Q. So it certainly - if a medication error occurred and digoxin were given it certainly would not help pink up the baby?

A. No.

Q. And in fact it would do nothing to improve the baby?

A. It might make him worse as you have said, if the underlying condition was one of



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those - I think when he came in he was thought to be
a tetralogy and that was why dig. was contra-indicated.
I don't think I have ever asked the question in the
light of what he actually did have, whether it was
still contra-indicated, I would have to check that
out, but it well may be.

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Q. I believe we have heard it was
contra-indicated.

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A. All right.

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Q. If again in my hypothetical

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digoxin was administered at 0345 in error, in the
amounts given, 0.4 and then five minutes later 0.2,
would the digoxin level taken at 4:30 of 72 be
consistent with that theory?

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A. Somebody who knows a little
more about mathematics than I - was that ml. -
was that 0.4 ml?

Q. It is 0.4 cc.

A. cc, that is an ml. then and
I understand, if that were adult dig. yes, the whole
ampule contains quite a wallop. Yes, it is my under-
standing unless somebody wants to correct my arithmetic,
yes, it would.

Q. It would be consistent?

A. Yes.

Q. And the thought that the --

A. In fact, to enlarge upon
that, and I have asked the question of a clinical
pharmacologist as to what size of dose given to a
baby in this weight group that we are dealing with,
in a lot of these patients, by push intravenous
could give you levels, and I asked him specifically
of 70 and the answer that came back to me was that
the standard loading dose that we give a little more
slowly during the alpha phase, that I think Dr.
Spielberg talked about. So if you give a "whomp"
yes, you can get a high level. If you got a level
of something like that amount, if you are postulating
half an adult vial, yes.



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Q. Because we know just very simply that you are not supposed to do digoxin levels immediately after administration because you get away too high level?

A. Correct.

Q. And certainly a level taken at 4:30, which would be within 45 minutes or 40 minutes of the administration of the drug, would be right at the loading point?

A. Yes.

Q. I believe in answer to Mr. Strathy's questioning of you, with respect to this half life of digoxin, in the Cook case, because it is during the period from 4:20 to 4:56, the child was in resuscitation effort, that is, not normal life, do you have any idea as to whether or not they were able to maintain circulation?

A. Sort of in the back of my mind I thought they were but I really - I don't know whether there are any notes that cover that precisely. Just one moment and I will see.

Q. Would you help me by looking on page 27, and the nursing notes on page 29, as to whether or not there is any indication that they were able to get circulation?



1
2 A. Well he says something there,
3 that he was fighting and irritable. No, that was with
4 the 23. Then he got the second dose so certainly
5 between the first and second dose he must have had reason-
6 able - then - that was the 23, let us get on to the
7 25, and when they gave him some atropine after things
8 had happened, they said good response and his heart
9 up to 140. So at that point, they have not got the
10 times right down to the minute there and then the
11 ventricular fibrillation, anaesthetist was called and
12 snock, 25 - they zapped him, as we say, with good
13 results, so that means he got a reasonable rhythm
14 so likely he had his circulation going.

15 Now, let us see beyond that. That
16 is Dr. Jedcikin's note, 10:25, result, blood pressure
17 now 110, so if you've got that blood pressure you are
18 circulating. Back into ventricular fibrillation des-
19 pite resuscitation measures. The child died. He
20 doesn't come right down to the minute by minute
21 there but certainly during some of that period he
22 had adequate circulation. I can't tell you exactly
23 whether at 4:56 or 4:52 or 4:50 that he had not. He
24 had some circulation for part of it.

25 Q. Would you agree with me,
Dr. Bain, when you were giving us your position with



1
2 respect to the half life of digoxin, that was with
3 reference to a child with normal circulation, that
4 is, a normal uninterrupted circulation?

5 A. These are the things I
6 don't know. You see, the blood is going around and
7 every time it goes around it goes out into the
8 tissues. Whether the tissue is able to receive it or
9 whether it is in effect dying or something I don't
10 know. Just saying that if it is based only on
11 circulation and is going around, I guess I would have
12 expected that some of it was going out into the tissues
13 because if we are going to postulate digoxin death
14 it has got to get into the tissues because it does not
15 do any harm in the blood, to the best of our knowledge.

16 Q. I understand what you are
17 saying but the half life that you were giving us as
18 an example, of 30 minutes ---

19 A. Yes.

20 Q. Is based on the understanding
21 the child has had normal circulation?

22 A. Correct.

23 Q. It is obvious that Justin
24 Cook did not have completely normal circulation because
25 he arrested?

A. Let us say he did not have



1
2 spontaneous normal respiration, correct.

3 Q. The only point I want to
4 ask you with respect to that is, could your 30
5 minutes of half life that was in the normal child
6 be prolonged for Justin Cook because he was in
7 arrest?

8 A. I would say that that is
9 a possibility, yes.

10 Q. Is it also quite probable,
11 not a remote possibility but probable?

12 A. I really cannot answer that
13 question. I don't know. If it isn't going around
14 then the answer to that question is yes.

15 Q. Baby Cook obviously in the
16 middle of the night had a blue spell at 0345?

17 A. Yes.

18 Q. If the baby was not given
19 anything to relieve that blue spell, is it possible
20 that the child could die because of the blue spell?

21 A. I understand that it is an
22 unusual occurrence, I won't say rare. It is an
23 unusual occurrence, but it happens.

24 Q. In other words, is it possible
25 that this child died because of his anatomical condition
and the blue spell, and the fact that there was digoxin



Bain, cr.ex.
(Symes)

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2 in the body had nothing to do with the cause of death?

3 A. All I can say to that is,
4 again, quoting the text books that say, and it has not
5 happened to me in my practice but I have not seen
6 that many tetralogies that I would not have referred
7 on. All I can say, and the text books say, that a blue
8 spell may be fatal - this blue spell, the type of
blue spell we are referring to.

9 Q. Yes, in the Cook case, a
10 severe one.

11 In other words, Dr. Bain, is it possible
12 that the digoxin did not get a chance, if it were
13 digoxin, did not get a chance to really operate on the
14 child. It was not there long enough?

15 A. That is so and that is a
16 question that I hope these researchers will answer.

17 Q. So that is still an open
question?

18 A. Yes.

19 THE COMMISSIONER: Sorry - what about
20 the tissue.

21 MS. SYMES: There were levels in the
22 tissue, I agree.

23 THE COMMISSIONER: I would have thought
24 it obviously operated to that extent. It may not have
25



1
2 killed him, if that is what you mean, but if it goes
3 to the tissue, it is getting in there.

4 THE WITNESS: Or else it was given
5 earlier. ✓

6 MS. SYMES: Q. You have said
7 obviously that there was some circulation which would
8 have carried the digoxin if administered through the
9 blood to the tissues?

7 9 A. Correct.

10 Q. The question though is
11 whether or not the circulation was perfect and that
12 is whether or not it would have happened in the same
13 time sequence as you would expect in a normal patient,
14 and we don't know that.

14 A. We don't know that.

15 Q. The only question, the last
16 one, is is it possible that this baby did die then
17 from his anatomical condition and the blue spell, and
18 that the digoxin was not an operating cause of death?

19 A. Yes, that is a possibility.

20 MS. SYMES: Those are my questions.

21 THE COMMISSIONER: All right, thank
22 you. We will rise until 2:30.

23 MR. ROLAND: Perhaps just before we
24 break, the Doctor referred to an article this morning
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in the Canadian Medical Association Journal, Volume
129, dated October 1, 1983 concerning errors in
computing drug doses. This is an article by Koren
and others and it is from Tel Aviv or the Tel Aviv
University.

THE COMMISSIONER: All right. No.

248.

---EXHIBIT NO. 248: Article by Koren and others in
the Canadian Medical Association
Journal, Volume 129, dated
October 1, 1983.

THE COMMISSIONER: Anything else?

MR. ROLAND: That is all, thank you.

THE COMMISSIONER: Then 2:30.

---Luncheon recess.

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--- On resuming:

THE COMMISSIONER: You are finished
or not, Miss Symes?

MS. SYMES: No, I just have a couple
more questions, Mr. Commissioner.

THE COMMISSIONER: Yes, all right.

MS. SYMES: Q. Dr. Bain, ust to try
and clear up how I left the hypothetical that the
digoxin was administered in error at 0345 hours on
Baby Justin Cook.

I gather then that just by simple
subtraction the baby died at 0456 hours. So, there
would have been 1 hour and 11 minutes for the blood
to circulate. I am correct in that, am I?

A. That looks right.

Q. And if the arrest occurred at
0420 hours then there would have been 35 minutes of
normal or close to normal circulation?

A. That seems reasonable, yes.

Q. And we are not sure afterwards
how much the circulation was for the remaining 40
minutes or, I guess it is 36 minutes?

A. Yes, correct.

Q. So, if the digoxin were
administered in error at 0345 hours, that would



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explain why some of it would have had time to get
into tissues?

A. Certainly, yes.

Q. Now,, yesterday in your evidence
you had talked about medication errors and you had
said that, and I am referring to pages 3379 and 3380:

"A. Right. So, now, by whom, I
wish I could answer that if it were
so. If I go back to my conclusions
again where I state that the possible
mechanism was that it could be
accidental or by design and if it were
accidentally then naturally that
would be a nurse. If it were by
design",

and then the question was:

"Q. Who knows?

"A. Who knows. Or a doctor. When I
say a doctor -- "

A. And then the question was:

"Q. When you say accidentally it
could be a physician?"

And the answer was:

"A. Yes, a nurse or a doctor."

Q. Now, Dr. Bain, this was a



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cardiac ward and my understanding is that the only persons who could administer Inderal or propranolol intravenously was a doctor?

A. I believe that is true.

Q. Nurses are not permitted to give medications IV?

A. I think they are allowed to give it higher in the - not in the tubing that runs exactly into the patient but I think there are certain medications they can put in the bag at the top that runs in more slowly. I haven't checked with the nursing on that for some time, so, I could be in error. But that is what it used to be.

Q. Okay, all right. So, we agree in that.

THE COMMISSIONER: I am sure we have had this, Doctor. You may not know but where is the - when you are giving a therapeutic dose of digoxin ordinarily, intravenously, where would it go?

THE WITNESS: It is my understanding, sir, and as I say I am not going to be held to account on this one.

THE COMMISSIONER: No.

THE WITNESS: My understanding is that when they are in a hurry to give it, they put it down



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into the tubing at the bottom. If it is something that is a little more leisurely then I suppose there is the possibility they could have put it into the, what we call the buretrol that is some cc's above.

MS. SYMES: I'm sorry, Mr. Commissioner, was your question to Dr. Bain how do they normally give digoxin IV?

THE COMMISSIONER: Therapeutically and intravenously?

MS. SYMES: Q Okay. Dr. Bain, digoxin, the IV digoxin is not given in an IV push, is it?

A Well, I wouldn't think ordinarily it would be given in a push, no, for whatever reasons.

Q Okay. It causes problems.

A I don't know that.

Q You're not sure, okay. It was just that Dr. Spielberg had talked about that.

A If he said that, that's fine, yes.

Q But propranolol or Inderal, is that normally given, that is, of all the dosages of propranolol or Inderal that are given, is it normally given by mouth, that is, orally?

A I really honestly can't answer



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these questions. I think they are going to have to be addressed to people who are commonly using them and to the nursing people.

Q. Now, the doctor's notes on page 27 of the Cook chart show that this patient got - again on page 27. Do you have it, Doctor?

A. Oh, here it is, I'm sorry. Yes.

Q. All right. This is a doctor whose writing I guess it is?

A. The bottom part of the page appears to be a doctor.

Q. Yes, it is Dr. Jedeikin who is writing it.

A. Jedeikin.

Q. He says in that:

"Gave 0.4 cc's (0.4 mg Inderal IV)".

A. Yes.

Q. And then another 0.2 mg or 5 - I guess five minutes later?

A. I suppose it should be milligrams or minums.

Q. That is minutes later?

A. Oh. I'm sorry, it is five minutes later, you are right.

Q. Dr. Bain, if the doctor drew up



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the Inderal or the drug that was given and gave 0.4 of a cc, would he administer the second dose five minutes later, 0.2 cc's from the same syringe or would he use a different syringe? What would be the normal practice?

A. I honestly can't answer that, I don't know. I suppose it applies to the syringe that was strapped to the bed, whether they use part and then five minutes later they used another part but they would have to be asked that question, I don't have that answer.

Q. So, you can't help us whether medical practice would be to use two separate syringes or the same one?

A. No, in my day it would have been the same one but things may have improved since then.

Q. Improved, okay. You have given us an article which is Article 248 "The Errors in Computing Drug Doses". That is the one from the hospital in Israel?

A. I must say that as I said this morning I haven't had time to read it myself this morning other than the conclusions at the front and I was going to pass it in later.

Q. Well, in this particular case



AA.7

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I gather that it is one type of error, medication error and, that is, miscalculation of the dose?

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A. I believe that from what I saw.

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As I say, I have not read it.

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Q. If you look on the last page of

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Exhibit 248 they were asking the people who were subjects of this test to do a calculation, eight in

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fact separate calculations of dosages. This then

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reports on the errors in this study which is one type

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of medication error. Would you agree with me?

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A. Several types of medication but

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I guess one type of medication error, yes, I think that is what you're saying.

13

Q. Yes, one type of medication

14

error.

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A. Yes.

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Q. Would you agree with me that in

17

fact there are many other types of medication errors

18

that can occur?

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A. Yes, that is so.

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Q. For example, the doctor could

write the wrong order?

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A. Correct.

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Q. The order might be transcribed

23

incorrectly?

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AA.8

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A. Correct.

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Q. The wrong drug might be given?

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A. Correct.

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Q. The wrong route might be given?

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A. Correct.

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Q. And the wrong patient?

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A. Correct.

9

Q. Or the wrong time?

10

A. Correct.

11

Q. And those are all medication

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errors that are unfortunate but your years of
experience would tell you they do in fact occur?

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A. Correct.

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Q. Now, in this particular one

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the results from this one particular type of medication
error reports that, for example, doctors, paediatricians -
this is on the second page - made 12.5 per cent errors.

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A. Yes, I see that.

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Q. And these people I gather from

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the paper were all volunteers and knew that they were
being tested for their ability to calculate dosages?

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A. I believe so. I think, as I

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recall it, they asked everybody and everybody

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volunteered. Whether that is like the army or not,

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I don't know what goes on in Israel.

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Q. Well, would you agree with me that they would then be aware that they were being tested for their accuracy, that that would be a likely thing?

A. Well, I would think, and certainly when they handed it and you have to figure something out in writing, which looks that way, is that what they did?

Q. So, this would be then --

A. Would be alert.

Q. Yes. In a test situation where they knew that they were being tested for accuracy we still have the error rate on average of 35.3 per cent; I think that is how we read it?

A. In that hospital I believe, yes.

Q. In that hospital?

A. Yes.

Q. And would you agree with me that in real life, that is, on the ward where things might be a little less calm than any test situation that the possibility of error might even be higher?

A. Well, I suppose there is that possibility. I guess where I get hung-up on that is when you are under stress, knowing there is an examination going on it sometimes affects you. When



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people phone you on the telephone and say, how,
answer this skill testing question and you win a
million dollars and what's your name and you can't
think of it. So, I think there are exceptions to
the rule.

Q. Okay: But you would agree with
me though that these people weren't phoned at home?

A. Oh, I would agree to that. I
will just say that I wasn't trying to be facetious
but under examinations, under stressful situations,
you know, a given individual sometimes performs
better under stress, some perform better when they
are not under stress. But I think generally speaking
that if they knew they were doing it they should be
doing better.

Q. All right. So, can you say
then from your years of experience that stress in the
work situation can sometimes cause errors?

A. Oh, certainly.

MR. LAMEK: That is not what he said.

MS. SYMES: Those are my questions.

THE COMMISSIONER: Mr. Knazan?

MR. KNAZAN: Thank you, Mr. Commissioner.

CROSS-EXAMINATION BY MR. KNAZAN:

Q. Doctor, I represent Mrs. Christie
who is a registered nursing assistant.



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Q. Would you just clarify for me, Doctor, was the Lombardo baby in your Group 2?

A. I believe that is so.

Q. I think Mr. Lamek may have led you into error yesterday, although he corrected himself; at page 3509.

A. I'm sorry, I don't have that.

Q. No, I know you don't. I am just putting this forward for my friends, I just want to assist them, at line 3 he indicated:

"I take it that the presence of digoxin in this child is the reason for her inclusion in your Group 1B?" And I believe he was talking about Lombardo. You answered "yes". But prior to that and after that it is referred to as Group 2 and I just wanted to establish it was Group 2.

Now, having established that I have some difficulty with what your Group 2 classification is, because at page 2 of your report you give an explanation for the babies in Group 1A and Group 1B, whereas for Group 2 it is more descriptive ---

A. It is clearly to say it is the patients who were the subject of the preliminary hearing.



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Q. And the three who are added,
subject to the chart, and the three who were added?

A. Yes.

Q. Could you not help us then
put a description on Group 2 the same way you have
in Group 1A and Group 1B?

THE COMMISSIONER: I am sorry.

THE WITNESS: I am a little
confused.

THE COMMISSIONER: I am too. What
do you mean?

MR. KNAZAN: Q. It seems there is
something in common other than the fact they were
at the preliminary.

A. The digoxin was alleged to
have been found in their tissues.

Q. In Group 1B you have stated
that some questions were raised, Group 1B, is that
right?

A. Yes, that is right.

Q. So would it be fair to say
at least in Group 2 some questions were raised by
the fact that the digoxin was found in the blood or
tissue?

A. Certainly, yes.



Bain, cr.ex.
(Knazan)

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Q. And in those for which digoxin was not prescribed some questions were raised, obviously.

A. During that --

Q. For Group 2.

A. Also in Group 2, yes.

Q. So would it be fair to say that those are the seven babies that give you the greatest concern, or the greatest difficulty?

A. Yes, that is so. As I say there is one additional there, Baby Belanger.

Q. Yes.

A. Yes.

Q. Now when you were discussing Baby Lombardo yesterday, with reference to Group 2, you stated that Baby Lombardo gave you some difficulties because the body was exhumed. Do you recall that?

A. Yes, I do.

Q. And you went on to explain that the difficulties were based on the calculations that could result from the mummification?

A. Yes.

Q. Would those difficulties lead you to take Baby Lombardo out of your Group 2?



Bain, cr.ex.
(Knazan)

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A. I did not leave him in. I did not take him out of Group 2, you know, in my conclusions again I came down to the point that this was a point that had to be decided by the experts in the group, and until such time I could go no further.

Q. I believe there is a slight difference between the calculations you referred to yesterday and the ones at page 56 of your report, to which Mr. Strathy referred you this morning; I am still on Baby Lombardo.

Yesterday you stated, and for the benefit of those who have the transcript it is 3486, and your worked through it like this, Doctor:

"...at a pretty low level of something, one of those substances let's say of only 2 or 3 in the ratio between blood and tissue is 150 there you've got 300 and then you are completely mummified then there is another factor of 10."

So were you suggesting there that the sample from the exhumed --

THE COMMISSIONER: I'm sorry, where are you?

MR. KNAZAN: I'm sorry, 3486 of



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Volume 60, starting at line 19.

THE COMMISSIONER: Yes, all right.

MR. KNAZAN: Q. Were you suggesting yesterday that there could be, that the level found in the exhumed body could be 3,000 times as high as the actual level ---

A. Whatever those mathematics come out to, I have said in my non-knowledgeable way these are the questions I would ask of the experts: (a) does the ratio of serum to tissue hold; and secondly, what would be an error contributed by complete dehydration.

Q. Then if you could refer to page 56 of your report.

A. Yes.

Q. That you were discussing with Mr. Strathy this morning. There you start with another example, 3 to 4 rather than 2 or 3.

A. Yes.

Q. You referred to the difference between heart and I presume blood is 30 times, about half way down to the left.

A. No, 30 is what I had in before as being the difference in ratio between serum and tissue in adults. That was the only information



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available when I wrote the report. After that time there appeared another and I think it is listed as an exhibit that had these serum versus tissue levels in infants and children and they came out to 1 to 150 on the average. So the 30 and the 150 represent the differences only between adults and infants.

Q. Thank you. That clarifies that. Now one of your recommendations was that the whole question should be reviewed by epidemiologists, is that right?

A. Yes, that is so.

Q. And was the Atlanta Report commissioned in part as a result of your recommendations?

A. I believe it was. The Hospital followed up on that and spoke to the Provincial Government, and following upon that I think consultation between Provincial and Federal Governments the study was commissioned, but it was at the request or suggestion might be a better word of the Hospital for Sick Children.

Q. Have you had an opportunity to read that report?

A. Only inasmuch as it was handed out here.



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Q. In the expurgated form?

A. Yes, that is true.

Q. Now yesterday, just towards the end of the afternoon you stated, and I am reading from page 3525:

"A. You know, it is for that reason that the second part of my recommendation was that we needed an epidemiological study for me to look at isolated events and wonder whether they do represent a cluster or not is not within an area of expertise. I have my views, but they don't seem to coincide with what the epidemiologists say."

Can you briefly ---

A. I think I probably was being facetious in that, in that clusters of patients to me may mean something, but along the line of what the epidemiologists stated in the meeting over the weekend, that I may see somebody, 10 of my friends who drink a lot and have lung cancer and I say there is a relationship, but the epidemiologists looks at it and says well, it's not that at all, it is just because a common factor to both lung cancer and to



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drinking and smoking, and it is the smoking that is there, so that is all I was referring to. I don't have any expertise in statistics, or epidemiology what might look straightforward to me they would laugh at, so that is why I felt it should be passed on to experts.

Q. So when you made that statement you did not have in mind a particular explanation of yours.

A. No, if I had had an explanation I would have put it in, that is beyond my area of competence in these cases.

Q. Now in preparing your report you did a detailed review of all of the charts?

A. I did, yes.

Q. Mr. Strathy indicated one point in one of the charts, I think it was Velasquez, where the resident himself admitted an error.

A. Yes.

Q. In the progress note?

A. Yes.

Q. Aside from that did you find any case, in all of your detailed review, where you disagreed with either what the doctor or nurse had done as revealed by the chart, on the basis of the



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information on the chart at that time?

A. I think my ready answer to that is, no, I did not. I am just sitting here thinking, was there such a thing. What I did in the chart review was to take a dictaphone and start at page 1 and wander through and talk to myself and have a little talk out loud to myself and ask questions. Then after that exercise to go back and probably on scribbling paper to put it into some sort of proper sequence of events and then from that go on to the final report. Nothing sticks in my mind, I didn't come across any sort of medication errors that I noticed was faulty.

THE COMMISSIONER: There was one in the Inwood case.

THE WITNESS: Yes and I so listed that, you are correct, yes, that is right. So anything that was there I did my best to - if I didn't miss it it is there.

MR. KNAZAN: Q. Another question, you referred to Dr. Butler this morning.

A. Yes.

Q. Do you know his first name?

A. I just gave the program to Mr. Lamek to have Xeroxed for you, I think it is Alan.



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MR. LAMEK: I would doubt it would
be Alan, it starts with a "V", but beyond that, I
cannot --

MR. KNAZAN: Q. Do you happen
to know if that is Dr. Vincent Butler of Columbia 'U'?

A. Oh, I'm sorry, Butler, if it is,
that is who it was, yes.

Q. And this is the man who
is credited with inventing, or developing, radio-
immunoassay?

A. I believe so.

Q. Did he have any opinion
on the value of radioimmunoassay either in the clinical
or forensic setting at this stage?

A. The meeting was not -- I
was not in the session where he discussed that sort of
thing with his peers, and I do not -- let me see if
I have written anything down. If it is not written
down, I don't have it.

THE COMMISSIONER: He might be a
little biased. He invented it?

MR. KNAZAN: Actually, what I had
in mind was him appearing on the CBC television
program saying that he did not think it was reliable.

THE COMMISSIONER: Did he do that?



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MR. KNAZAN: Yes, that is what I was trying to bring out.

That is all, doctor. Thank you.

THE COMMISSIONER: Then I apologize to him - he clearly is a very unbiased fellow.

MR. KNAZAN: I think he was honest. Thank you, doctor.

MR. LAMEK: We don't know what else he invented.

THE COMMISSIONER: Maybe he invented an improvement.

Mr. Olah.

CROSS-EXAMINATION BY MR. OLAH:

Q. Doctor, I act on behalf of the other registered nursing assistant on Ward 4A and I would like to follow up a line of questions that was asked with respect to Exhibit 248 by Miss Symes; that is, the errors in computing drug doses article that you were kind enough to supply.

Have you that article in front of you?

A. I do now, yes.

Q. I would like to refer your attention to the second page of that article under the heading "Results", and if we drop down about two-thirds



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of the way, in the first major paragraph there, you will see the conclusion there:

"There was a total of 680 computations. Of these, 43 (6.3%) were wrong."

Then, they give a breakdown of the computation errors.

I would like to refer your attention to the following paragraph:

"Almost half of the errors were major and, in 8 cases, they would likely have been lethal. The proportion of nurses who made errors increased with the length of their professional experience. (Table II)."

Does that result surprise you or does it coincide with the experience generally you find in major hospitals?

A. It would surprise me because all I can base these things on is my own experience through the years, and thinking of -- they say those things could have been fatal. I have to struggle to think of things back over my forty years of where, in fact, a medication error did result in death.

I think the flaw in this particular



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argument is that, in many things where there are dangerous drugs that could cause death, they are checked by someone else, and I take it, in this particular study, they did -- as I see it, no one checked anything. So, there are safety mechanisms.

I suppose the statement does not surprise me but, if you were to go on and say this in fact happened, it would surprise me.

Q. All right.

I would like to then draw your attention to the next paragraph under "Discussion" and, basically, what that paragraph does is track through the percentages that were analyzed in the paragraph above it.

"The overall proportion of computing errors in our study was 6.3 per cent. A baby who was sick enough to be in hospital for ten days receives on the average 10 doses of medication per day; according to our findings, approximately .6 of these doses would be erroneous, and three would result in gross overmedication or undermedication."

Does that coincide with your



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experience in hospitals, doctor, because those are fairly significant findings?

A. I think one has to go back a little bit. First of all, one would have to know are we talking a unit dose system or are we talking whatever. As I told you, I have not had a chance to read this myself. This will teach me to hand out material before I have studied it myself! I won't do that again!

Q. I think, in this case, we are grateful that you did.

A. I can see that.

No. As I say, the studies done by Mr. Justice Dubin and reporting on medication errors has been in the literature and varies, as I recall, from about 5 per cent or 6 per cent up to as high as 20 per cent. This is the material that Dr. Spielberg went over, and these were in hospitals without a unit dose system.

As far as I can go in things is to say that errors are made, whether they are of that magnitude, I have never done a study myself and, therefore, I am in no position to comment on whether those figures are correct.

Insofar as our own place is



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concerned, I know that sort of applying similar figures back at the time we got down way below the 1 per cent level but, you see, if you are doing a controlled study, maybe it is a different animal.

Q. When you are talking about the 1 per cent figure, you are talking about reported medication errors?

A. Reported medication errors and, then, what one has to know in the reporting of medication errors is the question, was the dose too big, which is then something which you worry about, or whether it was too small, which may not be of much consequence, or whether it was given too early or too late or whether -- there are other things that enter into those studies that Mr. Justice Dubin reported on. Although, I think just looking at numbers of medication errors can be very misleading. I think a study has to be done, and I do not know whether it has been done, of dangerous medications and following right through where it was in fact administered.

Q. So, I guess the bottom line is that you cannot really comment and neither approve or disapprove of that because you have no specific experience in this regard?

A. No, only anecdotal and



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checking your own memory.

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Q. I would like to go back to
a couple of other areas that are of interest.

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First of all, I think I took your
quote down this morning about the results or the
discussion about the RIA at the conference that you
attended, that the RIA was not satisfactory for
forensic work.

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A. You will have to -- I don't
know what I said. I believe that is what I said,
because we discussed it, and I believe it is what
was said and I believe Mr. Lamek agreed with me on
that.

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MR. LAMEK: I agreed with what you
said with respect to what you said about what my
friend had said. You were reporting, I think, that,
with respect to Valdes, that HPLC and RIA were
not satisfactory for what he called forensic work,
which you have said you prefer to call research work.
I think it was a combination.

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THE WITNESS: Yes. Thank you.

MR. OLAH: Q. That is even more
worrisome, is it not, doctor, when, in some cases, all
we have got in testing in this case is the RIA alone?

A. I won't speak to that



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because I think that is for the forensic lab to report on and whether they applied or did not apply HPLC all the way along but in some, they did and in some, they did not. And I think that is for the Atlanta people to comment on.

Q. I guess it is somewhat unfair to ask of you --

A. It certainly is.

Q. -- when you all you are doing is reporting someone else's statements.

Thank you anyway for that assistance.

Going back to a couple of the children under discussion here, for example, Baby Cook, that you have talked about, this was the baby who had several blue spells.

A. Yes.

Q. Would it be fair to describe this child, doctor, as a vulnerable baby in terms of its clinical condition prior to its death - a vulnerable child, a child in a vulnerable state?

A. In a high risk situation, yes, I think I said that before.

Q. So, consequently, it would not have taken very much to push this child into a terminal situation, I take it?



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A. I think the one thing

people must realize about children, and this goes for any sick children, that babies, and the younger they are, they get ill very quickly, they die very quickly. If you are able to intervene in the proper way, you may reverse it very quickly and they can get well very quickly. But the tempo of things in pediatrics is what sets it apart. When you are dealing with adult medicine, that whole tempo slows and you have time to think. Oftimes you do not when you have a baby with as many things wrong as many of these babies here. But even little babies who get an infection and have been previously well, the tempo is they are at more risk.

Q. And, in fact, many of these babies you have discussed during the course of your evidence; for instance, Pacsai, Hines, these were all children in a very vulnerable state.

For instance, Pacsai, from what I understand, had electrolyte problems and, consequently, was very vulnerable.

A. I think I stated that in my conclusions; that all of these babies had problems.

Q. Similarly, with the Hines baby, who we know had possibly the SIDS --



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A. Missed-SIDS.

Q. It certainly was a missed-SIDS but, possibly, SIDS mode of death - he was a vulnerable baby?

A. Certainly.

Q. So, whether there is accidental or intentional administration, assuming that that is what occurred here, it really would not take very much to push these babies over the precipice on to the ultimate terminal situation, given their vulnerability, I assume?

A. That is a difficult question. That would apply to many, many situations. That is, if you cut off their oxygen for a short period of time, you know, they are vulnerable. If you wanted to relate it to one thing, I have a little difficulty. They are vulnerable to everything at that time and, yes, the answer to your question is that many things, be it a mild infection or a mild body temperature - getting too cool - a lot of things can be the trigger that fires the final event.

Q. I guess what I am trying to establish through you, doctor, is this - I don't know, and if you would assist me, I would be grateful, it would not necessarily take a lot of digoxin, given



Bain
cr.ex. (Olah)

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CC11 2 the vulnerable positions some of these babies had,
3 if digoxin, in fact, was the causative agent in the
4 terminal events?

5 A. I think that is a very,
6 very complex question that I could not possibly
7 answer because all of the things, interactions that
8 come up with what digoxin does in the blood and what
9 it has to do in order to kill somebody, all of those
10 things enter into it. No, I could not answer that
11 question. That is one for the clinical pharmacologists.

12 Q. Let us then move on to
13 another area, if we may, and that is elevated
14 potassium levels.

15 A. Yes.

16 Q. Throughout your report and
17 your evidence, there is reference to elevated
18 potassium level in several of these children, and
19 that seems to be a common thread that runs through
20 many of these children; certainly the Group 2
21 children. For instance, Miller, I believe you
22 referenced as to the high potassium level, and that
23 is to be found at page 26 of your report.

24 There was a potassium reading
25 there of 9, at the very bottom of page 26 --

A. That surprises me a little



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bit. Are you sure that was not a post mortem value?

Q. I'm sorry, that is post mortem. You are absolutely right.

A. I'm sorry, that does not count. We throw that one out.

Q. Do we throw, in all instances, post mortem out?

A. Yes.

Q. Even if the post mortem reading is obtained very shortly after death?

A. I cannot answer that exactly but I would certainly have great difficulty with it, unless somebody could tell me it was all right.

Q. Because I was interested in the finding of an elevated potassium level in Baby Cook. I don't know if you have the chart there.

Do you have the chart there? It is Exhibit 116, doctor.

THE COMMISSIONER: And the page?

MR. OLAH: And the page is page 57.

Q. Would you have a look at the reading at six o'clock in the morning.

A. That, again, is after death by an hour.



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Q. Death occurred at 4:56 a.m.

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A. Yes.

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Q. So, this sample was taken

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approximately an hour after death. We have got a
reading of 8.7.

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A. I would not accept it. I

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would bow to a clinical pharmacologist if he would

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say he would. But, knowing through the years, and

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just to explain to you, it is awfully difficult to

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get blood out of babies and, if the blood is even

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slightly hemolized, it goes down to the laboratory

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and you spend an hour trying to get a blood specimen

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and they phone back up and say, "Sorry, it is

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hemolized; we won't even work on it." So, back it

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comes. To me, hemolysis and those things, I would
think start immediately after death, if not just

16

preceding it. So, something an hour afterwards, I

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would have the greatest difficulty accepting, unless

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they would tell me that they did a study and would

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accept it.

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Q. I would like you to turn

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to page 20 of your report because, in Kristin Inwood,

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during the arrest, there was a blood sample taken,

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according to your report, and the potassium level

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of 7.3 was established in that case.

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A. Yes, I think if a patient -
I think I called attention, I've got that in my own
notes here and that was the one that had a calcium
of 34.5 as well that bothered me a great deal.

Q. Yes. I notice you have
got it highlighted.

A. Yes.

Q. And similarly in the Pacsai
baby there was an elevated potassium level found and
you have discussed that already with Mr. Lamek.

A. But this was in life and
before arrest.

Q. Now, with the Pacsai child
there were elevated potassium readings earlier noted.
I think this was back at the Chedoke Hospital but
there was a fairly normal digoxin reading, you will
recall that. I think it was about a 1.8 level.

A. Well, actually, when the
baby came to St. Joseph's Hospital he had not been
on digoxin until then and was given its first dose
of digoxin at St. Joseph's Hospital to the best of
our knowledge and I believe it was the next day at
McMaster Medical Centre that there was a level of,
I think you are probably correct, 1.8.

Q. But there was concurrent to



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2 that finding a high - or concurrent to that finding
3 of 1.8 digoxin reading, a high potassium reading.

4 A. High potassium readings were
5 there on the first blood specimens I believe taken
6 from the baby in St. Joseph's or there were two sets
7 of blood specimens taken, as I recall it at St.
8 Joseph's, one within a half hour or so coming in but
9 both of them before any medications.

10 Q. Well, I guess what is
11 concerning me is this that early in the life of the
12 child we've got what appears to be fairly normal
13 digoxin readings and yet you have fairly high
14 potassium readings, am I correct on that?

15 A. Yes.

16 Q. And yet at the terminal
17 situation of the child you've got a high digoxin
18 reading and a high potassium reading?

19 A. I'm not certain what your
20 concern is about that because, as we have said, a
21 high digoxin can cause a high potassium and on the
22 other hand a high potassium, if it came first in
23 a patient who is on digoxin, can make it higher.

24 Q. Well, that is the point I
25 am trying to clarify with you, Doctor, that in the
first instance high potassium level doesn't seem to



Bain, cr.ex.
(Olah)

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2 have elevated the child's digoxin.

3 A. It wasn't on digoxin.

4 Q. All right, but this child
5 did continue to have high potassium levels, did it
6 not?

7 A. No, they settled down. They
8 treated the baby with intravenous and with sodium
9 and chloride and the potassiums within, oh, 12/24
10 hours came back down to normal at McMaster Medical
11 Centre and then at the hour of transfer or shortly
12 before transfer here it had gone up again to 5.8 and
13 I don't think there was a dig. level at that
14 particular point in time.

15 Q. So that early in the life
16 he didn't have a fairly low dig. level and a high
17 potassium level?

18 A. Well, there was no dig.
19 level done. There was no history of the baby ever
20 having received digoxin before it came to St.
21 Joseph's Hospital.

22 Q. Okay, thank you. Now, I
23 would like to turn you to Appendix 4 of your report.
24 Well, page 49, paragraph 9. I was hoping you could
25 elaborate on something for me there.

A. I am sorry, which page in my



Bain, cr.ex.
(Olah)

report?

Q. It is Appendix 4 under Section 7, paragraph 9. There you are talking about ---

A. I am lost for the moment. Can you just tell me which page in my report that is?

Q. Well, unfortunately ---

MR. LAMEK: Page 49.

THE WITNESS: 49.

MR. OLAH: 49.

A. Okay, all right.

Q. Do you have it?

A. I have it.

Q. It is paragraph 9 that I was interested in. There you talk about ECG features.

A. Yes.

Q. "It is important to realize that there are no unequivocal ECG features which distinguish digitalis toxic rhythm from those due to intrinsic cardiac disease, although, some combinations are suggestive." And it is that phrase that I was interested in "some combinations are suggestive". Can you elaborate on that, Doctor, and tell us whether



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2 there are any combinations that would either assist
3 us in determining whether digoxin toxicity is a
4 matter of concern for here or are they excluded?

5 A. I will have to plead my
6 ignorance on that and you will have to ask a
7 cardiologist that question because many of the
8 cardiologists feel that they cannot say for certain
9 that they would lean in one direction if this or
10 that or the other thing occurred, which I am not
11 competent to speak on electrocardiography as that is a field
12 onto itself. So, I cannot comment on what those
13 combinations are.

14 Q. All right. Well, I was
15 just trying to elucidate something that you put
16 in your report but if you feel that it is beyond your
17 area of expertise we will leave it there.

18 A. What I said in that, I'm not
19 sure. Yes, if you look at paragraph 11, in all of
20 those things I was quoting Dr. Thomas Smith of
21 Harvard Medical School and I have his reprint if you
22 should wish to have a copy of it some time. It is
23 a little old and, so, probably a little outdated but
24 it is available.

25 Q. I would be most grateful
if I could have a look at that, Doctor.



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A. Okay.

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Q. The other matter that I would

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like to turn your attention to is on page 56 of your

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report. This is under the heading "Additional

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Digoxin Information"and, in particular paragraph 9.

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A. I am sorry, I was just making

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a note to myself for that reprint. Yes, go ahead.

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Q. I suspect that this paragraph

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probably was the result of Dr. Spielberg's expertise

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and Dr. MacLeod's expertise but you will see that there

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there is a discussion about body digoxin and digoxin

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metabolic products and excretion or findings of levels

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of digoxin in the kidney and the lower intestine and

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you indicate that it is now known that digoxin and

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digoxin metabolic products are excreted into the

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intestine so that levels of digoxin found in the

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intestine do not necessarily mean that they arrive

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there by oral ingestion?

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A. That is correct. That stems

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from testimony at the preliminary trial by Dr.

22

Hastreiter saying that all of the digoxin in the body

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could be accounted for by what was found in the urine

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plus - I have forgotten exactly - but then since that

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time there has been a lot of evidence now to suggest

that it can be excreted into the intestine and I think



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2 I alluded to it this morning, one of the speakers
3 in the last few days says it appears to be the liver
4 that can alter things in the manufacture.

5 So, I think it can be directly into
6 the intestine, into the intestine from the liver and
7 bowel ducts as well as the kidney and that is so, yes.

8 Q. Well, I was more interested
9 about possible findings of digoxin in stomach tissue.
10 Can you assist us in respect of that?

11 A. No, I cannot, other than
12 at the Murphy trial, and you can ask Dr. Kauffman
13 when he comes, but he went into that in great detail
14 and my recollection of it was that he did not feel
15 that he could draw any conclusions from it.

16 Q. Well, in paragraph 9 who
17 was the author of it, Doctor?

18 A. I am the author. These are
19 musings on my part, just thinking out loud again of
20 additional information and gleaning it from the
21 literature. So, in looking at the literature I
22 found that somewhere in my readings that digoxin
23 has been shown to be excreted into the intestine and
24 that digoxin has been shown to be excreted through
25 the liver and the bowel duct into the intestine and,
so, that was transcribed.



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Q. So, I take it when I asked you about the stomach, and I would like to ask you about the bowel also, what you are really saying is that your review of the literature has not really dealt on that topic?

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A. What I am saying, I don't know whether you are talking stomach tissue or inside the stomach because if it comes through the bile duct into the upper intestine a lot of it will flow back into the stomach, yes. But in stomach tissues and things I'm not sure that that has been done and if it has I don't know the results.

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Q. Well, let's take it step by step because I unlike you am a neophyte in this area.

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A. Sure.

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Q. Are you saying that it would not be unexpected to find digoxin in stomach contents?

A. If digoxin is excreted into the intestine, as is said there, then people, you know, when you vomit, for example, you are not just vomiting what is in your stomach at times it will sometimes come back from the lower bowel. So, it is possible that you get a reflux back into the stomach from other parts of the intestine. So, one would not be able to say whether the digoxin got there through



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internal means or whether it got there from the top
and gone on through.

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Q. All right.

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A. You are going to be in that
dilemma.

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Q. Now, what about stomach
tissue itself?

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A. I don't know. I don't know
whether that has ever been done. I don't have that
information.

10

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Q. So, your literature review
did not shed any light or cannot shed any light on
that?

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A. That is correct.

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Q. And similarly with respect
to a finding of digoxin in bowel tissue, did your
literature ---

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A. Same thing, whether it is
in most of the information I have or whether it
represented bowel contents, so, whether it got there
through bowel wall, in which case you would have to
catch it on the way through or whether it got there
from sources above or even from the mouth down, they
are all possible.

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Q. Doctor, I would like to now

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2 turn our conversation to a different area. I under-
3 stood when you were testifying in chief, what you
4 did in fact was a case by case review of each of the
5 children, in particular with respect to the Group
6 2 children. It was a case by case approach.

7 A. I forget, it is whatever Mr.
8 Lamek asked me.

9 MR. LAMEK: I think it was that.

10 MR. OLAH: Q. Well, Doctor, I take
11 it the way you approached this report of yours was
12 to review each child's chart and information available
13 to you on a case by case approach?

14 A. Oh, certainly, and that
15 applies to all of them, yes.

16 Q. I wonder if in retrospect
17 whether looking at the totality, the total picture,
18 whether that gives you a different perspective than
19 does a case by case approach. I guess what I am
20 trying to get at, Doctor, is this. We are in a
21 bit of a quandry and we are looking for pointers that
22 may assist us in putting the pieces together.

23 In looking at the situation as a whole
24 are there any pointers indicia, or markers other than
25 the convulsions, which I would like to come to, that
would in your view assist us in determining whether



1
2 there is digoxin toxicity in some of the cases or
3 not. I would like to refer to the category, the
4 type 2 deaths and the additional death which is
5 Belanger, which was outside the category 2.

6 A. Well, I think all I can do,
7 Mr. Olah, is again refer you, as I did yesterday,
8 to my conclusions that looked at case by case was
9 one thing, I was able to satisfy myself that this,
10 that and the other thing has or had not happened.
11 I felt however, just as you have now stated, is there
12 anything when one looks in a retrospective way
13 about it and you have got a cluster or a clump or
14 do you have a cluster or a clump and I felt that,
15 number one, everything hinged on digoxin data, that
16 we must have the digoxin experts look at it, that
17 is what we recommended and the second part is that
18 we must have the epidemiologists look at it and
19 that I would not stick my neck out further on those
20 things until those bits of evidence were in because
21 they are not my areas of expertise.

22 So, my answer to your question is,
23 in looking back over them, I am not going to draw
24 those conclusions until the next step in the
25 investigation is in.

Q. Well, I am not asking you to



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draw conclusions, Doctor, I am asking whether in retrospect there is any markers, that is, physical markers of clinical markers that may assist in this Commission in pointing the needle one way or another. Is there anything that you feel is there clinically that may assist us one way or another?

A. Well, I don't believe so. You have mentioned the question of several of these babies having convulsions and I just don't know what the meaning of that is, whether that is related just to the terminal events of dying of anoxia or hypoxia and high CO₂ and all these things we have talked about before, whether it is in any way, it is not one of those things that is commonly said to be due to digoxin. All I did in that particular instance was to point out that there is a high incidence of convulsions and one must look in that direction.

So, one might say, yes, that is a marker that needs looking at. If you were to ask me what do I think that marker means, well, gee, there are a hundred causes of convulsions.

Q. I understand that. What I was trying to ascertain was whether there were any other markers that in retrospect ---

A. Well, yes. The main marker,



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2 naturally, was the information that digoxin had been
3 found and that is what triggered my recommendations,
4 really. I can't think. I suppose one would say,
5 again, or the things that the Commission is looking
6 at, not anything that I have stumbled on, is the
7 question of when the babies died. Now, if you are
8 asking me is there anything in addition to that,
9 I can't think of anything at the moment.

10 Q Fair enough.

11 Now, turning to the Inwood sample
12 that you referred to yesterday. You made reference
13 to the sample being found in Dr. Middleton's fridge,
14 I think you said.

15 A. I think that is correct, yes.

16 Q. That is the first time that
17 name appeared and I was wondering if you could assist
18 us in telling us who Dr. Middleton is?

19 A. Dr. Middleton is Chief of
20 Virology. My initial information was that it had
21 come from Dr. Ellis' clinical chemistry. When I
22 was trying to track down that other specimen that I
23 mentioned that Mr. Cimbura had mentioned a level of
24 less than two in Inwood I checked with Dr.
25 Middleton about the number on the vial, or whatever,
the requisition number and he said that isn't one of



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ours but he quoted me the one that is the one we are
talking about, the high level.

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So, he is Director of Virology
at the Hospital.

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Q. I take it that that high
reading was a matter of concern. So, I assume you
tracked the course of that sample or its life in the
Hospital through to its conclusion?

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A. That I did?

Q. Did you?

A. No, that is not my job.

My job was to do a chart review and I think that
is a job for the police to do, to follow through
and the forensic lab and again the CDC. I think
that was one of their charges was to find out the
validity of specimens and to track them down.

No, my job was not to be a detective.

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Q. And in the course of your enquiries did you happen to find out the history of that sample?

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A. No, I did not. Other than I told you just in the past, probably within the past month I had always heard that it came from clinical chemistry, and I just took that to be that it was a specimen sent for something else and they found it in their fridge. The same applies to Virology that it was sent there for something and I don't know whether he has the information at all, I did not feel that was my job to follow.

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Q. Now you mentioned in your cross-examination earlier today that some people had mentioned a multiplier of $1\frac{1}{2}$ to 10, I think you said.

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A. Yes.
THE COMMISSIONER: Talking about life and death?

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MR. OLAH: I am sorry, sir?

THE COMMISSIONER: A question of life and death? I am really quite serious about that, you said multiplier, but it has to be a multiplier between something and something.

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MR. OLAH: This is pre-mortem and post mortem I assume.



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THE COMMISSIONER: I think we are getting a little, I had better watch my language, it is Thursday afternoon, should we take a break at this point?

MR. OLAH: Certainly.

THE COMMISSIONER: All right, 15 minutes.

---Short recess.

---Upon resuming.

THE COMMISSIONER: Yes, Mr. Olah.

MR. OLAH: Thank you, sir.

Q. Doctor, before I conclude our chat this afternoon, I was interested in this mention, or reference, to multipliers. I think you have taken multipliers of 2 and 3 as being accepted.

A. 2, I believe I said I took 2.

Q. And I think somewhere in your examination this morning I made a note that some people now have reference to multipliers ranging from $1\frac{1}{2}$ to 10.

A. I think probably I was speaking a little facetiously, I'm not sure whether anybody has said that. In that particular thing, I think in the meeting the other day the figure was 4, a figure of 4 was mentioned. There is an article in the



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American Journal of Cardiology this year somewhere that took figure of 3.2. But as I say for my own purposes and in this I took 2, and it seems to me that is what most people are taking at this point in time.

Q. I understand that, but I was intrigued by the reference that you made of the range of $1\frac{1}{2}$ to 10.

A. Yes.

Q. You say that is not so?

A. I don't think that is so.

Q. The highest multiplier, if I may call it, that you are aware of at the present time is 4.

A. Is 4.

MR. OLAH: Thank you, Mr. Commissioner, those are all the questions I have.

THE COMMISSIONER: All right. Thank you. Yes, Mr. Shanahan.

MR. SHANAHAN: We will be changing the normal order here, but I may not be here on Monday and my friends are going to allow me to cross-examine.

THE COMMISSIONER: Yes, yes, all right.



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3 MR. OLAH: Mr. Commissioner, the
4 witness made reference to an article of a multiplier
5 of 4 and I would be very grateful if he would make
6 another note.

7 THE WITNESS: I made a reference
8 of a multiplier of 3.2, the article was 3.2 and I
9 said I believe someone in the open discussion the
10 other day, and we will have to wait for the transcripts
11 of those to come of the meeting.

12 MR. OLAH: Thank you.

13 MR. LAMEK: Indeed, if it is of
14 any help, Mr. Commissioner, my recollection is that
15 Mr. Cimbura as early as the preliminary hearing
16 said with respect to heart blood a multiplier of 4
17 was one he would accept.

18 CROSS-EXAMINATION BY MR. SHANAHAN:

19 Q. Sir, my name is Shanahan and
20 I act for the families of Lombardo and Dawson. I
21 will just be a minute with you, sir.

22 A. I am sorry, you said which
23 patients, which names?

24 Q. I act on behalf of Lombardo and
25 Dawson, the families.

A. Thank you.

Q. You mentioned in your report



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here and I think Mr. Strathy highlighted it, and that was you were into an area of conjecture with respect to the possibility of dig. like substances in tissue, the multiplier effect.

A. Yes.

Q. And then the eventual reading in exhumed tissue, all right?

A. Yes.

Q. Now on that theory here, the Commissioner, I recollect that in the Bain report and I think knows where that comes.

A. I think it is the appendix.

THE COMMISSIONER: Was this the 1 and 30 that became 1 and 150, is that what we are talking about?

MR. LAMEK: Page 56 of the report.

MR. SHANAHAN: Q. Page 56 of the report.

A. Yes.

Q. I think, sir, working from the back it is the fourth page in.

THE COMMISSIONER: "...that the level in heart muscle might be 30 times that level or up to 120 nano-grams."



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THE WITNESS: That is right.

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THE COMMISSIONER: You now think it
might be up to 150 times that?

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MR. SHANAHAN: Q. Sir, just to put
to you some of the facts that we have learned. First
of all, as I see it and as we have heard from the
doctor out west, when he found this substance X
there was no mention, sir, of substance X being
found in tissue, it was only found in blood. First
of all, are we on common ground there, sir?

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A. We are.

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MR. ROLAND: Until I stand on my
feet.

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THE WITNESS: Well, I was going to
answer that by saying until he was examined here and
he said that he did have levels in tissue but he
would not divulge them.

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MR. ROLAND: I refer my friend and
you, Mr. Commissioner, to Volume 5, page 697 when
Dr. Seccombe was being cross-examined by Mr. Strathy
and he was asked at the bottom of that page about
any research with respect to the presence of substance
X in tissues and he went on in the next several pages
to indicate that he thought they had detected
substance X in tissues; but as the Doctor indicated



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2 this morning he was not prepared to talk about any
3 levels in tissue because they had not perfected their
4 methodology and that research was ongoing.

5 To answer my friend as precisely as
6 we can from Dr. Seccombe's evidence it would appear
7 they have found substance X in tissues.

8 Q. I think we will agree that
9 the transcript might reveal it appears to be found in
10 tissue but we haven't got any readings yet from
11 Dr. Seccombe.

12 A. That is what I said, yes.

13 Q. And sir, I put to you as well
14 that we have had evidence of some experiments done
15 by Dr. - or Mr. Cimbura, which would indicate
16 he did not find substance X at all.

17 A. I am not aware of that.

18 Q. And finally, sir, then we have
19 had evidence from Mr. Cimbura that when he used the
20 technique of mass spectrometry that he was satisfied
21 that on the exhumed material that he had he was
22 confident here, and I think Dr. Spielberg accepted
23 it as well, what in fact he was looking at here and
24 what he had found was true, if you like, digoxin. Are
25 you aware of that?

A. I don't believe I am because I



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2 think that was last week, was it not?

3 A. It was, sir, yes.

4 THE COMMISSIONER: I want to go back
5 to Seccombe again, he was using the RIA at the time?

6 MR. SHANAHAN: That is right.

7 THE COMMISSIONER: So there is no
8 conflict really between Seccombe and Cimbura?

9 MR. SHANAHAN: When it comes to
10 argument that will be an issue I will put to you.

11 THE COMMISSIONER: Good for you.

12 MR. SHANAHAN: Q. Now that is with
13 respect to the exhumed tissue here. You will agree
14 as well, sir, that bearing in mind those issues that
15 we have just reviewed, Mr. Cimbura's testing; what
16 values Dr. Seccombe might have found in tissue; the
17 use of mass spectrometry; you will agree too though,
18 sir, that even on the figures that you gave there
19 you are assuming that substance X is going to act
20 like, and specifically that it is going to multiply
21 like digoxin itself.

22 A. I don't think I was assuming
23 anything of that nature at all. I just said that
24 these were questions that had to be answered. Again
25 I will go back to my conclusions and recommendations
that everything hinges on the dig. data; that the



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3 experts in the field must testify to that dig. data;
4 and I would not be doing anything more than putting
5 in that appendix until such time both those data and
6 the data regarding epidemiology reports come in.
7 So I don't really - I am not assuming at all. I
8 think the work has to be done, it would be awful
9 to be assuming these things. The work has to be
10 done, and whether or not everyone agrees to substance
11 X, they seem to be agreeing to it and in the meeting
12 the other day the question of whether substance X
13 can be found in tissues is open. The only reference
14 I have seen to it at all is Dr. Seecombe's which I
15 believe I faithfully transcribed.

16 Q. Just to use your wording there,
17 these readings you get, all that sort of musing
18 that you put there in fairness, the question is
19 open to whether substance X does this multiplying
20 that you have talked about?

21 A. Certainly, that is what I
22 thought my question was.

23 Q. And those figures are based on
24 the assumption that indeed quite apart from coming
25 off the assay-like dig. it is also going to multiply
like dig.?

A. Yes, absolutely.



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Q. Sir, with respect to Baby Lombardo, you placed her in the category of seven children you did, because of the fact she was added on I think to the original four in the indictment against Susan Nelles?

A. Correct.

MR. BROWN: I don't think she was added to an indictment, her name was raised during the Preliminary Inquiry.

MR. SHANAHAN: Q. Now you are aware that the conclusions that you might have come to quite apart from that, sir, that Mr. Cimbura found concentrations of digoxin in many of her tissues, in myocardial tissue it ranged from 187 to 667 nanograms per gram; liver was 354 nanograms per gram; lung was 289 nanograms per gram; skeletal muscle 218 nanograms. A total of approximately 629 nanograms of digoxin found in the stomach and 280 nanograms in the contents of the small bowel. Would it be fair to say, sir, that Stephanie Lombardo and the tissues that were exhumed that digoxin was found in many diverse tissues in her body?

A. I think that is so, but I think those assumptions that I was raising, or the bits of things that I felt should be tested were not



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2 just referring to skeletal muscle. Every part of
3 the body has 90 per cent water, probably our brain
4 is a little more, I am not sure. Nevertheless every
5 tissue that he is going to be able to analyze must
6 certainly have been awfully dried out in order to
7 have continued to live. I would be very surprised
8 if you would find dig., or even dig.-like substance
9 in only one tissue. I would think if it is dependent
10 on the circulation and you find it in the circulation
11 you are going to find it in all tissues. You will
12 find it just as you would dig., that would be my
13 assumption, that you will find it everywhere. So,
14 yes, and as I said before I am quite happy with
15 Mr. Cimbura's numbers, but I think it is up to the
16 clinical pharmacologists and experts to say what the
17 significance of those numbers is.

18 Q. Well bearing in mind, sir,
19 the only questions here that we put with respect to
20 whether it is substance X here; if in fact it is
21 digoxin as Mr. Cimbura has said from analyzing it
22 with mass spectrometry, and you are aware as well
23 that Stephanie Lombardo was to have, no matter what
24 multiplier we use, or how dehydrated the tissue might
25 have been, Stephanie Lombardo was to have no digoxin
in her system.



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3 A. Yes, and if you go on to the
4 next part of my conclusions where that is what was
5 told us, and therefore, if in fact there is agreement
6 that those are significant, they are there, everybody
7 admits they are there, if they are significant it
8 raises the question of whatever the things I wrote.
9 Therefore I was trying to be as fair as I could be in
10 saying what the possibilities were.

11 Q. Yes. And Dr. Speilberg indicated
12 too that in fact it could have been just the thera-
13 peutic dose, someone else's therapeutic dose given
14 accidentally.

15 A. It could be accidental, it
16 could be by design and what else could I put there
17 in my conclusions. I will read it again because:

18 "This raises a question of deliberate
19 administration, accidental administra-
20 tion before or after the cardiac
21 arrest or validity..."

22 And I ask that to be changed to:

23 "...interpretation of the laboratory
24 test results."

25 Q. Sir, one question about a
child I don't act for and I am curious here, Belanger.
Belanger is not to be on digoxin. Belanger has a



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3 shunt put in. Belanger dies on the ward, at night,
4 and within a few days of Lombardo. Belanger, the
5 theory is when the child dies, and before autopsy,
6 that the shunt has occluded. They do an autopsy and
7 the shunt is not occluded. They exhume tissue a
8 long time later and they find quantities of digoxin
9 in the exhumed tissue. Why was Belanger not put
10 in the same category ---

11 THE COMMISSIONER: He has put him
12 in now.

13 THE WITNESS: I put him in.

14 MR. SHANAHAN: Q. He is in that
15 group of seven, is it?

16 A. Yes, it is eight now.

17 Q. Now it is eight. In terms of
18 error, with respect to Belanger and the likelihood
19 of error here, Belanger and Lombardo, the same error
20 with respect to the same drug, on the same ward,
21 would have to be committed twice in roughly five
22 or six days, however soon apart these two children
23 died.

24 I put it to you, sir, that the likeli-
25 hood of that occurring, all those errors occurring,
would be highly unlikely.

A. Well, without going into detail



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3 all I can say is I saw the same error many years ago,
4 the same error by two different people at the same
5 time, on the same day, on the same ward. So yes,
6 but again those are the questions that must be
7 answered by the epidemiologists or the statisticians
8 as to whether - I don't know, I guess I am of the
9 school that seem to think things happen in three's.

10 Q. Only two there that we know
11 of. Thank you, sir. That is all.

12 THE COMMISSIONER: Mr. Tobias.

13 MR. TOBIAS: Yes, Mr. Commissioner,
14 as we are all going out of order, I am going to
15 attempt to accommodate my friend Mr. Labow by
16 questioning now. Dr. Bain, don't pay any attention
17 to this myriad of notes, books and documents. It is
18 just at law school they taught that is how you
19 intimidate a witness, bring out as much as you can.
20 A lot of this is Lady's Home Journal and things like
21 that.

22 THE WITNESS: As long as it is not
23 Readers' Digest.
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2 --- CROSS-EXAMINATION BY MR. TOBIAS:

3 Q Doctor, my name is Warren Tobias
4 and I act for the family of Jordan Hines. I was
5 particularly interested yesterday in your evidence
6 with Mr. Lamek when you were talking about diagnoses
7 and the mode by which you had the most faith in
8 making diagnoses and I think your evidence was,
9 correct me if I am wrong, that in your view about 95
10 per cent of the diagnosis is history and physical
11 examination of the patient, and I think you used
12 words to the effect that you can throw the lab
13 findings out. Do I accurately and fairly summarize
14 what you said?

15 A Well, I think I added a little
16 bit to that when I went on to say that the purpose
17 of the lab is to corroborate the physical findings,
18 that is, you order them with a purpose. To take the
19 spectrum of somebody sending you something, to pull a
20 lab report out of context, I don't like that. I
21 might modify that to 90 per cent and 10 but on history
22 and physical as opposed to the rest.

23 Q But those are clearly things
24 that you depend on most in terms of making a diagnosis?

25 A Correct.

Q Can I take it that you were



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referring there not only to clinical diagnoses made in life but post mortem diagnoses to explain the cause of death?

A. I do not know that I can go that far at all because we are only human and, trying to look into this complex thing we call a body, we look into the doors you have and the windows you have but in the final analysis the purpose of pathology is to confirm or whatever what our feelings were. In no way would I ever, on my history and physical examination said this patient does not have pneumonia and at post mortem examination there is evidence of pneumonia, I am not going to stand there and say, they are wrong.

Q. That is not really what I was getting at though, Doctor. The proposition that I put to you is this. When a patient dies, the person in the first instance who is probably in the best position to hypothesize as to the various possible modes of death is the clinician that has physically examined that patient and taken down the history and has observed that patient during life on a day-to-day basis. Do you agree with that?

A. The process is not quite like that. That is sort of the method but there is no way



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that I can go on and say that he is in the best position. With the tools he has, yes, he is, but it is like having a box and I, on the basis of judgment or whatever, may be guessing, tell what is inside it, but in no way am I in the best position - I am up to the point of you opening that box but the moment you open it, my role is second best.

Q. Do you agree with me that that clinician who has treated the child on a day-to-day basis and observed the child and taken down first-hand history is probably in a better position in terms of hypothesizing cause of death, is in a better position or a more superior position, if you want to put it that way, to another doctor, another clinician, who has not had a chance to see the child and observe the child, or physically examine the child?

A. I think I have already said that, that if someone does not see a patient he is in no way able to hypothesize other than on the basis of the information passed on to him either by the first doctor who saw him and even that is second best because he is not seeing it through your eyes - you are seeing it through his and asked to give perhaps a different opinion which you are really in no position to do.



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Q. I understand. In giving your evidence to Mr. Lamek yesterday I believe that you went out of your way to try and be very, very honest and very, very candid and you indicated that obviously some of the limitations you had in your task was the fact that you had not been actively involved in the care and management of any of these 49 babies, had not had a chance to observe them during life and really were not given the opportunity to take down the history firsthand. To that extent that obviously made your task a little bit more difficult?

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A. Yes, no question.

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Q. Let us specifically talk - I have been talking generally, I would like to specifically talk about the diagnosis of Sudden Infant Death Syndrome or the sub-category we refer to as missed Sudden Infant Death Syndrome.

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A. Certainly.

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Q. When he was examined by Miss Cronk, Dr. Becker, who I am sure you are familiar with --

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A. Yes.

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Q. -- was very, very emphatic that it was quite important to him in making a diagnosis of that sort that he get a full and an accurate picture



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of the clinical history of the child and I believe his words were that that was absolutely essential to the diagnosis. Do you agree with that view?

A. Oh, yes.

Q. So the things we have been talking about generally in terms of clinical observation, if anything are even more important or more highlighted with respect to the diagnosis of Sudden Infant Death Syndrome?

A. I think you are going around me a little bit there, but I think that is --

Q. Let me simplify it. It is a very simple proposition. We know that obviously it is an important consideration in any diagnosis but because of the nature of Sudden Infant Death Syndrome, having all of that clinical information and accurate history, it is even more important. Can you agree with that?

A. I agree with that because, you know, to qualify for Sudden Infant Death Syndrome, by definition one does not find anything at the post mortem examination in 90 per cent or 95 per cent, other than these now subtle changes that Dr. Becker described and is new in the literature and appears in about 60 per cent of missed-SIDS or SIDS.



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Q. All right. Now, Doctor, with respect to the evidence again that you gave Mr. Lamek yesterday, you indicated that essentially you had virtually no communication with the cardiologists, prior to commencing to write your report. Do I understand that evidence correctly?

A. That is correct, yes. I had that communication I suppose through their notes on the chart.

Q. Oh, yes, no question about that. I am talking about direct oral discussion.

A. That is right.

Q. I take it that that would also apply obviously to the other clinicians because it was not just the --

A. To shorten it up, I did the report myself, yes.

Q. Okay, fine, and it was basically on a review of the medical charts, the transcripts of the preliminary hearing and whatever snippets of evidence you got out of the news media. Correct?

A. Correct.

Q. I take it, and this question to a degree is obvious, but was there any effort on your part to contact the parents of Jordan Hines?



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A. No, there was not, and it would
be not proper.

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Q. As a matter of fact, as I under-
stand it at the time the policy being followed
generally in the Hospital, I am not sure whether you
were aware of it or not, was that the police had told
them not to communicate with parents?

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A. I cannot speak to that.

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THE COMMISSIONER: The police had
told them what -- ?

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MR. TOBIAS: It was my understanding
or my recollection of earlier evidence, Mr.

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Commissioner, that the Hospital had been advised by
the police that in light of the police investigation

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there really should be no direct communication with
the parents and I think the Hospital would have

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insisted that its personnel follow that general modus
operandi.

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Q. So obviously you did not have
the benefit of speaking to the mother?

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A. Nor have I yet.

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Q. And obviously you can agree
with me that that is important? As a matter of fact,
I think you gave evidence yesterday that who better
than the mother to see changes in the baby?

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A. Correct.

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Q. Will you agree with me that with respect to the clinical history of the child Hines that a great deal has been made with respect to certain episodes that happened at home?

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A. Yes, certainly. It would appear to be a good history in that regard.

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Q. In fact, Doctor, I noted with some curiosity that at page 17 of your report you went so far as to say:

"The episodes described at home prior to this baby's admission to the North York General Hospital are consistent in every way with 'near miss Sudden Infant Death Syndrome'." That is a direct quote.

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A. I am not certain what we are saying there. I think the episode described as, I guess what I should have said is "as occurring at home" rather than "described at home". Are we saying the same thing?

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Q. Well, Doctor, I am merely quoting your exact words.

A. Yes, I know, but what I am saying is there is no way the episodes are occurring



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at home - somebody had to find out from her and it was the doctor I guess at the Hospital, but what I am saying is the episodes described as having occurred at home, not that she was interviewed at home necessarily.

Q. Yes, I understand.

A. Are we saying the same thing?

Q. Doctor, let me put this proposition to you perhaps to clarify it. You will obviously agree with me.

The only information you would have about any episode that occurred at home is what comes in the chart. That would be your sole source of information, would it not?

A. If I did not talk to the mother, yes. As I said, everything here was the sole source - of all my review.

Q. But Doctor, I want to go further. I assume when you did not speak to clinicians at Sick Kids I assume you also did not speak to the people at North York General?

A. But the history is a compendium of what they were told by the doctors there.

Q. I understand that entirely but you agree with me there was certainly no communication



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between you and the doctors at North York General?

A. Correct.

Q. And it was the doctors at North York General who would have spoken to Mrs. Hines and who would have taken down the description of what happened at home?

A. They would in the first instance but then when the patient came to The Hospital for Sick Children that would have been gone through again by the admitting doctor and possibly by others of the doctors on the staff. I don't recall offhand whether others asked that but our people, as part of the learning process, must take an independent history.

Q. I understand that. Now, Doctor, where would that independent history be recorded in the medical record of the child?

A. It would be the history of present illness.

Q. I see, and could you, Mr. Registrar, assist me in putting Exhibit 103 before the good doctor. That is the medical record of the infant, Jordan Hines.

A. The only exceptions to such a rule are if a patient comes from out of town or the



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patient is sent in by whatever and the parents are not there and a letter comes with it. Then they will sometimes transcribe the letter from the doctor as the history of present illness and by the same - that is the usual thing of what is supposed to be done, yes.

Q. Doctor, if you can turn with me to page 61 of Exhibit 103, there appears a history on The Hospital for Sick Children form and where we have got the line "Informant" it says parents and notes from North York. So can we agree that it is likely, and we don't know for sure, but it is likely that whoever took down this note was relying on whatever the parents told them and the notes from North York General?

A. Oh, yes.

Q. We notice where it says "History of present illness", "Well until one day PTA".

A. That means prior to arrival.

Q. Prior to arrival. All right.

"Found by mom in bed. Gray-blue in colour, shallow breathing, picked up and shaken ...".

The next word, I am sorry I cannot --

A. "Child choked, cried and pinked up immediately."



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Q. Then it says:

"Few more episodes -- "

A. The same episode occurred plus or minus half an hour after the next feed. It happened again.

Q. Then it says:

"Few more episodes of shallow respiration and changed colour, gray-blue, pinked up immediately on shaking."

A. Yes.

Q. And further then, I don't believe there is any more references specifically to shallow breathing or choking. It says "Admitted to North York General" and then obviously whatever occurs after that is taken from the notes at North York General.

My point is this. Whatever information you have regarding what happened at home basically comes from that page in the chart?

A. As I said, all of my information comes - there may be something else from the chart but whatever I have is from the chart.

Q. But Doctor, my question is simply this. Had you treated that child during life



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I am sure that in your professional judgment you would agree with me that it probably would have been very helpful and instructive, had you been treating that child during life, perhaps to talk directly to the mother and find out precisely --

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A. If the patient were referred to me, that would be my duty to take a history. We usually allow the residents to do it first so we don't interfere with the process and we may not put our notes on but certainly if the patient is referred to me, that is my duty, yes.

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Q. And it is obvious that that would allow you to get much more detailed and precise information because, No. 1, you could design the questions, you could ask the questions and go into as much or as little detail on any particular point as you thought fit?

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A. Right.

Q. With respect to the clinical history of the child Hines, I put to you the following proposition. I put to you, and you may not be aware, that that clinical history was really terribly, terribly misconstrued and misunderstood by a variety of clinicians at The Hospital for Sick Children. Were you aware of the fact that Dr. Rowe who gave evidence



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here, when he was being examined, and, Mr. Commissioner, I am not going to read it verbatim but just in case you want the reference it is Volume 17, page 2854, it was Dr. Rowe's impression that this episode at home was so severe that the child would have died if not shaken by the mother.

Then we had Dr. Fowler when he was examined telling us that he thought the child had required mouth-to-mouth resuscitation at home and Dr. Vera Rose was under the same identical impression and finally Dr. Phillips, who testified just the other day, told me that it was his information on the basis of things he had heard by Dr. Becker, that the child nearly died at North York General Hospital.

Now, you have reviewed the chart and you have reviewed the history of what happened at home and what happened at North York General. None of the episodes at home or at North York General were quite as severe as the other doctors seemed to feel they were. Isn't that correct?

A. As you have pointed out I have not talked to the mother and certainly through the years I have had situations occur and I have letters on file that I could probably find because people knew of my interest in SIDS and mothers wrote to me.



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Bain, cr.ex.
(Tobias)

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One mother in particular said that her child would be so entranced with those mobiles over the bed that she would start staring at it and forget to breathe and turn blue, and she was quite sure that if she had not shaken the baby that the baby would not have breathed again.

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So that I think that maybe people,
maybe they are exaggerating their thoughts but what
I am saying to that is that one does not have to be
moribund and require those things to be able to make
such statements, I don't know.

Q. Doctor, I get certain
information. Obviously I am in a much better position
than you because I act for the family of Jordan Hines.

A. Yes.

Q. But I have certain
information and, Mr. Commissioner, I asked you to
accept the proposition subject to later proof, I will
have no difficulty introducing that evidence when
the time comes, but it is my understanding that the
incident at home merely consisted of a coughing spell
in the early morning hours of March 4th, that the
baby immediately responded to, immediately upon being
picked up, no shaking or anything and went back to
sleep and was fine until 1:00 p.m. the next day.

A. Yes.

Q. When he was sleeping and
turned sort of a grey/blue colour, but again he was
picked up and gently shaken and immediately came
around. That is all the episodes at home amounted to.

A. Yes.



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Q. I have examined the chart, the notes at North York General. I can see no reference, please correct me if I am wrong, to any resuscitation efforts that had to be undertaken or any critical illness that he exhibited there. So, can we agree that it would appear, it would appear that the picture that the other doctors at the Hospital had had up until the time they were examined was pretty confused in light of what really happened?

MR. ROLAND: To be fair, the chart doesn't quite say that. I mean, my friend says there is very little on the charts. If you look at it from the North York General it says apneic spells associated with bradycardia and followed by tachycardia, right at the top.

MR. TOBIAS: Yes, I have read those charts, Mr. Roland.

MR. ROLAND: You know, I suppose there could be different degrees of interpretation of that but the interpretation that my friend puts on it may be one and the interpretation that the doctor has put on it may be another.

THE WITNESS: Well, perhaps if I could just go back to what the story is with the usual case of SIDS and with the usual patient with SIDS. The



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patient is put to bed perfectly well and after a variable length of time whenever it is the parents go in and the baby is dead, there is nothing.

In the typical case of missed-SIDS the patient may have an apneic spell and respond in this mild thing, in fact, going back into the history of some patients they have found that have invariably, not invariably but in certain cases at least these little episodes such as are described in what I have in the history.

So that I see -- I am not too concerned by people putting a different interpretation on what happened at home. If I take the mildest of those it is perfectly in keeping with SIDS.

MR. TOBIAS: Thank you, Doctor, I understand that and I am certainly not trying to suggest to you that because of the rather cloudy vision that some of these doctors had about the clinical history that that is totally inconsistent with SIDS.

MR. ROLAND: Well, I think that is unfair.

MR. TOBIAS: Let me finish, Mr. Roland.

MR. ROLAND: I think that is unfair



GG4 2 to suggest that that is cloudy or that is so.

3 THE COMMISSIONER: I'm sorry,
4 you think what is so?

5 MR. ROLAND: Well, that the doctors
6 have a cloudy vision.

7 MR. TOBIAS: Well, Mr. Commissioner,
8 we can save a lot of time and I might make this
9 suggestion to you that eventually after you have heard
10 argument on the point and the appropriate portions of
11 the transcript that have been read to you you can
12 decide whether or not the vision is cloudy or not.

13 Q. But can we agree on this,
14 Doctor. There is certainly nothing anywhere in the
15 chart and if I am wrong I would ask you to point out
16 to me where it appears in the chart that would indicate
17 that at any time prior to the terminal events in
18 this baby's case resuscitation efforts were required?

19 A. Well, I will accept your
20 word for that but I think the most important thing is
21 why did mother, if she did not think these things
22 were significant, take him to the hospital.

23 Q. Well, Doctor, that is a
24 valid question.

25 A. To the North York hospital.

Q. That is a valid question.



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A. Yes.

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Q. Can we simply agree though

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with the observation that it doesn't appear that there

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were ever severe enough spells that required resusci-

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tation?

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A. I think that is so but that

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does not bother me because most times a shaking is

sufficient.

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Q. All right. And in that

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regard then you agree with me that clearly Dr. Rose

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and Dr. Fowler and Dr. Phillips and Dr. Becker had

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obviously misunderstood what had gone on before

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because they all thought that tefforts of resuscitation

were required?

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A. Well, did they -- you know,

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I would rather not comment on that because I think

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their comments are probably based at this point in

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time on that episode that occurred a couple of years

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ago and I guess I am going to have to go back through

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the chart and see whether there are notes by them at

that time because people's memories do get clouded.

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Q. All right. Now, were you

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also aware of the fact, Doctor, that Dr. Rowe, and

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I believe Dr. Fowler and I believe Dr. Rose gave

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evidence before this Commission whereby they were

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under the impression that Dr. Becker had come to only a tentative conclusion regarding missed-Sudden Infant Death Syndrome?

A. I don't know that, I was not here when they testified.

Q. All right. I ask you to look at the medical chart again of Baby Hines, specifically page 28.

A. I have it.

Q. All right. Now, I take it that obviously when you were reviewing the chart of this baby one of the things that you read was the preliminary autopsy report?

A. Yes, it was there then.

Q. All right. And it is my information, I don't want to waste your time, Doctor, so please take my word for it, Exhibit 103A in fact is the final autopsy report and except for the fact that the word "Final" is typed in in place of the word "Preliminary" the reports are absolutely identical.

A. I'll take your word for that, yes.

Q. All right. Now when you read this, Doctor, I suppose you noted on the title line "? Sudden Infant Death Syndrome"?



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A. I must have, yes.

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Q. Okay. And I also take it

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that clearly in your reading you came across this

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particular passage, and I am referring now to the

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last paragraph on the first page about half-way through
the paragraph:

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"This is the findings seen in SIDS.

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Other findings which support a

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diagnosis of a missed-SIDS are the

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fat and the thickening of the

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pulmonary arterioles. This

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pathological evidence in conjunction

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with the clinical history makes the

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diagnosis of a missed-SIDS a

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possibility. However, this does

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not explain the arrhythmias and

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further conclusions will have to

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await examination of the conduction

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system. There was no evidence of

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infection in the autopsy."

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And I also ask you to look at page 2,

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Doctor, under "Pathological Diagnosis", where Dr.

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Becker lists as number one, "? Sudden Infant Death



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Syndrome".

Now, all I would like to know, Doctor, is at the time you reviewed this chart and you read those passages, what information did you get from it, what was your view of Dr. Becker's opinion?

A. Well, I think what I need to say in this is that I have studied or whatever, been involved with Sudden Infant Death Syndrome for quite a few years and have seen the various research evolve. There was a great interest when this business of the findings that Dr. Becker was talking about of Dr. Naeye, N-a-e-y-e, Dr. Richard Naeye, produced at a conference that was held here in Toronto back in the mid-70s when he first discovered these findings of the pulmonary arterioles being thickened in patients with Sudden Infant Death Syndrome. That was elaborated to these changes in brown fat and erythropoiesis, which just means that red blood cells are being manufactured in places where they should not be, suggesting the baby needed extra red cells because he had a little trouble with his oxygen saturation, that all of these findings really stirred a great deal of interest in the medical world and in 60 per cent of patients with Sudden Infant Death Syndrome they are



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found.

So, it is not a hundred per cent
that they are found but in 60 per cent they are found.
So that when I read the clinical history and with
those pathological findings there was really very
little doubt in my mind and in the absence of other
findings that this is what in fact the baby had.



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Insofar as the other people not speaking to that, I am not sure when the preliminary report got to the chart. There is one other thing that you should know is that when a case becomes a coroner's case, and I am not sure when this case became a coroner's case, until very recently the instructions of the pathologists were that he was not to release the information to the clinician or anyone else.

Now, about a year ago Dr. King came and spoke to us about that specific point and I believe things have changed. But I think with reference to this particular chart that there is very good reason to think that information was not available to the others, but I am only postulating here.

Q. Mr. Commissioner, I can finish this particular point in about three minutes and then we'll break.

THE COMMISSIONER: Yes.

MR. TOBIAS: Q. Doctor, in fairness to me and I accept everything that you have said, Doctor, and it was very enlightening, it was extremely enlightening, it was so enlightening that I almost forgot I originally asked.



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A. That was what I was hoping for.

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Q. Fortunately for me I have an elephant's memory as well as appearance. The question was, when you read that preliminary autopsy report, and I take it there is no question that you read it before you made your report, whether it was a coroner's case or not.

A. It was in the chart when I reviewed the chart, yes.

Q. So, you read it?

A. I certainly did.

Q. What did you think Dr. Becker was saying to the reader when he read it?

A. I think that Dr. Becker was saying to the reader that the findings that he had found and that even some other ones that are in there that one of his people has reported as original research were in keeping with Sudden Infant Death Syndrome or near missed Sudden Infant Death Syndrome.

I understood him to say that it was compatible with the clinical history, I understood him to say from what you have read to me that he had a little question about the electrical activity of



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2 the heart and I would take issue with that and all
3 of the references I have given you today will point
4 out to you that those are common things, not uncommon.
5 I would further state that he thought he would get
6 further information from examining the conducting
7 system in the heart and, to the best of my knowledge,
8 that was never done, it was a mammoth job.

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9 Q. All right. Now, Doctor, I
10 am not going to be unfair with you. The fact is that
11 this Commission has heard from Dr. Becker and Dr.
12 Becker has been very forthright in saying, gentlemen,
13 regardless of how you read that, that is not what I
14 meant to say.

15 I only have one further question for
16 you this afternoon and that is this. On the basis of
17 his report as you read it at the time did you take
18 it that he was making a definitive pathological
19 diagnosis or a tentative pathological diagnosis?

20 A. I was taking it exactly
21 as he says. He said, I think I read at the top of
22 the page "Query Sudden Infant Death Syndrome".

23 Q. So, you felt he had a
24 question about it?

25 A. Certainly he had a question
about it, he stated he had a question because he was



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concerned about the arrhythmia.

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Q. And your evidence today

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is ---

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A. And I have no concern about

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the arrhythmia.

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Q. All right. Your evidence

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today however is you don't share that concern and
you certainly had no question about it, you felt this
was a classic missed SIDS case?

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A. Yes.

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Q. All right. On that note,

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Doctor, we will break for the weekend. Have a good
weekend, sir.

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THE COMMISSIONER: Now, what's the

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word. I noticed that Mr. Shinehoft just on the
off chance that you weren't going to last out
skipped.

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MR. TOBIAS: Yes, I noticed that, sir.

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MR. LABOW: I was next, Mr. Commissioner,
so he had no problems.

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THE COMMISSIONER: What is the story

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Monday. I take it first of all, Dr. Bain, you are
available, are you?

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THE WITNESS: I will make myself

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available, yes.

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2 THE COMMISSIONER: Yes, all right,
3 fine, thank you.

4 MR. LAMEK: The story, Mr.
5 Commissioner, is that we may have to encourage
-5 6 Messrs. Tobias, Labow and Shinehoft to spend the
7 next three days cross-examining Dr. Bain. Dr.
8 Kauffman is not available next week. That part
9 wasn't serious.

10 MR. TOBIAS: Mr. Lamek, you know that
11 I could carry on for a day or two without a witness
12 so, you should have no problem.

13 MR. LAMEK: The batting order next
14 week is a little unclear, Mr. Commissioner. I hope
15 to have something by Monday though.
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THE COMMISSIONER: All right. Well,
we will meet at 10 o'clock Monday.

MS. CECCHETTO: If I may ask a
question. I apparently am confused and some other
counsel are confused as well as to exactly what you
expect on Thursday with respect to oral argument. Do
you expect oral argument on the two points that we
have already discussed?

THE COMMISSIONER: No, no, oral
argument only on the two questions, the Notice under
Section 5 and the production of the police report.

MS. CECCHETTO: Thank you.

MR. TOBIAS: Mr. Commissioner, I
did have one point on a more serious note.

THE COMMISSIONER: Yes.

MR. TOBIAS: You initially indicated
that you wanted written submissions with respect to
your original question posed by November 1st and that
you wanted to give counsel 10 days in which to respond.

Now, I know you sort of gave away
your intention yesterday when you indicated that you
would spend your Armistice Day reading over the
submissions and the replies.

I was just wondering if you might
reconsider. Obviously, there were a lot more



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submissions made than certainly I had anticipated and
a lot more law cited than I had anticipated which
has to be replied to. It might be helpful for
counsel in preparing their replies if we had that
extra weekend to prepare the reply and I was going to
ask you if you might consider allowing us to have
until a week from Monday to file our replies to
the written submissions.

THE COMMISSIONER: Well, can I post-
pone the decision on that; the reason being that if
Mr. Lamek is unable to produce a witness there will
be an unexpected holiday.

MR. TOBIAS: Yes, that is true.

THE COMMISSIONER: It is not something
that I'm looking forward to but it is possible.
I suspect that Mr. Lamek has been bribing Dr. Kauffman
to say he is unavailable. However, if that happens
then I don't think that that time will be necessary
and I would like - it is important I think to make
a decision with respect to the naming of names so
that those people whose names might be mentioned
will at least know as early as possible where they
are going and they may anticipate. So, I would
like to get that on but I don't reject your proposal.

MR. TOBIAS: All right, thank you, sir.



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3 THE COMMISSIONER: All right.

4 Mr. Olah?

5 MR. OLAH: The only other thing I
6 would say in response to Mr. Tobias' request is the
7 problem we have had in scheduling with Mr. Sopinka
8 and others. It has been such that when we have
9 finally resolved a date I would like to proceed on
10 that date because I can foresee the possibility that
11 with Mr. Sopinka's scheduling we won't get at it
12 again until three or four weeks and that is a concern
13 that I have.

14 THE COMMISSIONER: Well, we haven't
15 suggested changing that date. The only thing would
16 be that we might be able conceivably to start earlier,
17 I don't know.
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MR. OLAH: I would be very grateful
for that.

THE COMMISSIONER: Yes. Well, we
will see. Is there anything else?

Then until Monday at 10 o'clock.

---Whereupon the hearing adjourned at 4:40 p.m. until
Monday, the 7th day of November, 1983.

